# ARCHITECTURAL FORUM

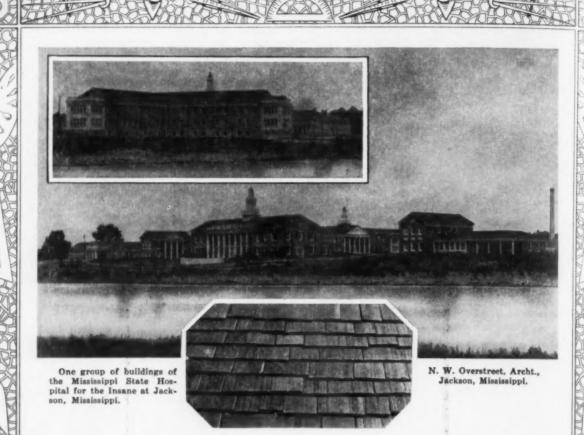
IN TWO PARTS



PART ONE
ARCHITECTURAL DESIGN
DECEMBER

1929

HOTEL REFERENCE NUMBER



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### BOOK DEPARTMENT

#### HOUSE & GARDEN'S BOOK OF COLOR SCHEMES

A REVIEW BY

NEVA BRADLEY

been submerged for so many years is responsible for the present universal interest in color. Such vivid reminders are being flashed before us at every turn that we are forced to recognize the importance of color and its proper use.

Countless attempts have been made in past years to compile a work that would add to the fund of knowledge to which the decorator might turn for inspiration in the achievement of a house decorated in excellent manner. Many publications, like many flowers, were born to bloom unseen. All too rarely does one find a volume that so clearly, deftly and concisely deals with the subject of color in its relation to interior decoration as does "House & Garden's Book of Color Schemes," edited by Richardson Wright and Margaret McElroy, editor and associate editor respectively of House & Garden. Be-

tween its covers are collected hundreds of exceptionally well chosen illustrations of walls, living rooms, dining rooms, bedrooms, sunrooms, roofs, garden rooms, kitchens and bathrooms, representative work of well known interior decorators whose various abilities are well recognized. Fully half of the book is devoted to illustrations and to describing color treatments characteristic of each decorative period. The subject is dealt with completely and impartially, from the Renaissance to the present day.

A fitting introduction to the various period treatments is Weymer Mills' fanciful color impressions of the periods. "Each era seems to have established its own distinctive and unforgettable tints and tones in decorative schemes." Taking up the Renaissance, John H. Hutaff discusses the various merits of the sixteenth and eighteenth century styles of Italian furniture. He gives for an example of the harmonious blending of the two styles an outline of four rooms in a small New York house. Of especial interest among the ten pages of

THE trend of the modern age toward free expression illustrations of excellent architectural interiors and furhas swept us into a seething pool of color. Never niture arrangements are the views of Mortimer Levinhas the world been so color-conscious as today. Modern- trett's Venetian residence. Ethel A. Reeve suggests ism in its reaction to the drabness in which we have interiors combining vigorous colors with the sturdy fur-

niture of seventeenth century England, while Pierre Dutel covers the eighteenth century Georgian period with color schemes for five rooms, a bath and roof garden. Harold D. Eberlein traces the development of the English Regency style with its vivid coloring and classic lines. In the section devoted to French rooms the adaptation of the colors of the Louis is dealt with by Ruth Lyle Sparks and illustrated with views of interiors done by Diane Tate and Marian Hall, Clarence Mack and others. Usable ideas from both the Directoire and Empire periods are given by Eleanor McMillen. Decorative schemes of Arthur Heun, Thedlow, Inc., and Robert E. Locher illustrate these eras. The picturesque provincial manner, with its mixture of country simplicity and city sophistication, is very adaptable to informal houses

in this country. Louise M. Torrance offers some delightful suggestions for rooms furnished with the informal, rustic pieces of France, Italy or Spain. Included are illustrations of four unusual rustic rooms from a house designed in the Basque style by W. Kenneth Rindge.

For the assembling of furniture from both the earlier and the later period of Colonial interiors and for the adaptation of this furniture to modern American interiors, Helen Wells outlines some helpful hints. Among other illustrations are those of a Long Island hunting lodge of which McMillen, Inc., were the decorators and John Russell Pope the architect. One illustration of especial interest depicts old time New England. Charles G. Colman was the architect. The simplicity of modern decoration is well illustrated by Jules Bouy's creations. Since simplicity is the keynote of this era, color naturally comes into the foreground. For those who wish to move on in the spirit of this era, there are plenty of color suggestions by Bruno Paul, exponent of modern types.



An Eighteenth Century English Interior Illustration from "House & Garden's Book of Color Schemes"

Unless otherwise noted, books reviewed or advertised in The Architectural Forum will be supplied at published prices. A remittance must accompany each order. Books so ordered are not returnable.

From the title of the work one would be led to expect that the illustrations would be largely color plates. Such is not the case, there being not over half a dozen in the volume. This, however, in no way lessens the helpfulness of the volume in giving the reader a clear color picture of all decorative schemes, be they illustrated or not. Decorator, architect and layman will find in this work inspirational material for the arrangement and design of interiors as well as definite information on choosing pleasing combinations of various tints and tones. The schemes suggested are neither vague nor startling, and they are far from being commonplace and merely "safe." Had anyone just a few years ago been so bold as to attempt to decorate a room in lacquer red, gray and black, the efforts would have provoked little sympathy and much raising of eyebrows. Today we view such a combination with interest. The arrangement may or may not be happy, but the thing is that we are tolerant. Consequently, our color perceptions are being sharpened, and with experience there comes growth.

Despite the interest or possible admiration for certain of the new departures from set color schemes, there is a class of people, be they professional decorators or amateur home lovers, who lack the courage to do what they fear may be thought "extreme." For the benefit of such there is included an article of encouragement by Harold D. Eberlein. "Color courage in decoration is one of the rarest qualities among civilized people of today." Praise is given to the small group which is "well away on the road to complete color freedom." The other and much larger group is urged to have done with conservatism, and to grasp and handle color firmly

rather than timidly. A list of 17 refreshing combinations is offered for color-cautious persons to try putting into effect. One example of the possibilities which are bound to make one look at this subject with new eyes is: "Walls—pearl lavender, slightly deeper in tone below the chair rail; woodwork-red, between coral and Venetian, picked out with gold; floor-dark French walnut parquetry; large, plain rug of deep purplish mulberry; hangings of jade green taffeta." Another suggestion which would make anyone listen with unfeigned interest is the description of a little sitting room on the ground floor of a house in Mayfair. "Floor lacquered red; walls and door painted a warm oyster shell gray; door architrave and all other woodwork, black; ceiling, black highly varnished to pick up reflections; furniture covered in black sateen with white piping, and a few small incidentals of red lacquer along with several old polychrome Chinese pictures." Bold and brilliant color schemes are often exceedingly subtle, and it requires a goodly degree of sophistication either to devise or to appreciate their full significance.

Since color is the most attractive and also the most dangerous element that enters the decorative scheme of an interior, Grace Fakes gives some fundamental and sensible rules to be observed for its development in various rooms. A most unusual and valuable feature of the volume is the "vocabulary" of color for decoration. The definitions cover all the shades, tints and tones through the various reds, divisions of brown, orange, the family of yellows, gold green tones, the blue group, and the violets. The reader will find many usable ideas in the descriptions and illustrations of rooms developed

# "Hotel Planning and Outfitting"

EDITED BY

C. STANLEY TAYLOR and VINCENT R. BLISS

Here is a volume which for the first time adequately reviews the entire subject of the modern hotel,—its planning, designing, equipping, decorating and furnishing. It covers every detail, from the beginning of sketch plans to the registration of guests when the house has been completed and opened. All the different types of hotels are dealt with,—the Modern Commercial Hotel, the Residential or Apartment Hotel, the Resort Hotel, and the Bachelor Hotel. The volume is replete with views of hotels in different parts of the country; their exteriors and interiors, and in many instances their plans are included and fully analyzed.

The editors have been assisted in the preparation of the work by widely known hotel architects and interior decorators and by actual operators of hotels,—practical men, experienced in the management of the "back" as well as the "front" of a hotel. The volume's treatment of hotel furnishing and equipping constitutes the final word on this important subject. There are included views of hotel restaurants, cafeterias, kitchens, pantries, "serving pantries," refrigerating plants and all the departments which are necessary in a modern hotel of any type. The work is of inestimable value to architects and engineers, as well as to practical hotel men.

438 pages, 81/2 x 111/2 inches-Price \$10

### THE ARCHITECTURAL FORUM

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IF this reference number of the Architectural Forum has special interest for you because you plan and design hotels, then you will surely find useful our booklet, "Facts You Should Know about Resilient Floors for Clubs, Lodges, Apartments and Hotels."

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in the primary tints. It is commonly thought that the use of much blue in the decoration of rooms is to be carefully avoided. Margaret McElroy describes the living room, hall and bedroom of a small apartment in which she combined various shades of light and medium blue with enough warm tones for contrast to prove that it is possible to produce a charming effect by the use of blue as the dominant note. In the outline for four rooms having red as the chief color, Mrs. George Draper shows how this striking but difficult hue can give strength and character to a room. Further proof of this is seen in the illustrations of a red lacquer library decorated by the Frankl Galleries, and a little red, white and blue powder room by Agnes Foster Wright. Mrs. Wright also gives suggestions for five rooms and a porch of a small country house which uses yellow as the main theme. The crisp effect produced by white walls, yellow ceiling and light green rug, or white wall paper with gold lattice design, blue ceiling, and rugs hooked with yellow and mulberry, could leave no room for gloom.

Several unusual sources of color inspiration have been touched upon. That afforded by under-sea life offers an unending variety of unusual designs and novel hues which can be translated into terms of decorative interiors. William Beebe beautifully describes "the exquisite harmony of tints compelled by the pastel perspective of water." Another source which offers endless possibilities is that of the old fashioned flower garden. A bouquet of summer rooms, as suggested by Felicia Adams, is developed from flowers such as mignonette, zinnia and sweet William. Again, if a room be built around one's hobby, it is bound to be interesting. Chamberlin Dodds

suggests, if one has a hobby, planning the color scheme of the room around the collection and letting it form a "back drop" for the treasures. He takes, for example, an old Chinese vase on which appear various shades of seven colors, cream white, both jade and apple green, powder blue, lacquer red, eggplant and black; from these he develops four rooms in an unusually pleasing manner.

Kitchens, bathrooms, sunrooms, and occasional small rooms to serve and amuse are fertile fields in which the decorator can splash about gaily. Being a product of our own age, the modern bathroom affords the decorator considerable opportunity for originality. When it was found that beauty and sanitation could be combined. the bath-dressing room with its luxurious appointments began to make its appearance. An account of the development of the modern bathroom is given by Paul T. Frankl. Most effective results are obtained by the liberal use of decoration on wall areas. The possibilities are limited only by the ingenuity of the artist. Among the unusual treatments illustrated is one with the dado finished in silver with walls painted in pale pink and decorated with eighteenth century scenes in umber grisaille. Another by the same artist has silver walls and ceiling with under-sea motifs in black; the tiled dado is in ocher surmounted by black trim; the floor is of black and white tiles. Brilliant tropical designs and mura's are being painted on the mirrored walls of bathrooms of Pierre Dutel suggests many novel uses for painted glass. Mirrored table tops, mirrored lamps and crystal accessories have offered such endless possibilities that decorators are now extending the use of crystal to larger areas. Dining rooms are lined from floor to ceil-

### "CHURCH BUILDING"-By Ralph Adams Cram

(A NEW AND REVISED EDITION)

HE improvement which The improvement the progress of American architecture during recent years has been no more marked in any department than in that of an ecclesiastical nature. This has been due primarily to the rise of a few architects who by travelandstudy have acquired much of the point of view from which worked the builders of the beautiful structures which during the fourteenth century and the fifteenth were being built over all of Europe.

These architects have closely studied the churches, chapels, convents and other similar buildings in England, France, Spain and elsewhere, and the result has been a number of American churches of an excellence so marked that they have influenced ecclesiastical architecture in general and have led a distinct advance toward a vastly better standard. This improvement has not been exclusively in the matter of design, for plans of older buildings have been adapted to present-day needs, and old forms have been applied to purposes which are wholly new.



THE appearance of a new and revised edition of a work which is by far the bestin its field records this progress. Mr. Cram, being perhaps the leader among the architects who have led this advance, is himself the one individual best qualified to write regarding the betterment of ecclesiastical architecture. The editions of this work of 1900 and 1914, which have for some time been out of print, have now been considerably revised and much entirely new matter has been added,

which in view of the change which has come over ecclesiastical building of every nature is both significant and helpful.

Illustrations used in this new edition of "Church Building" show the best of recent work—views of churches and chapels large and small, in town and country, buildings rich in material and design and others plain to the point of severity, with the sole ornament in the use of fine proportions and correct lines. Part of the work deals with the accessories of the churches and their worship.

345 pages, 6 x 9 inches, Price \$7.50

THE ARCHITECTURAL FORUM, 521 Fifth Avenue, New York

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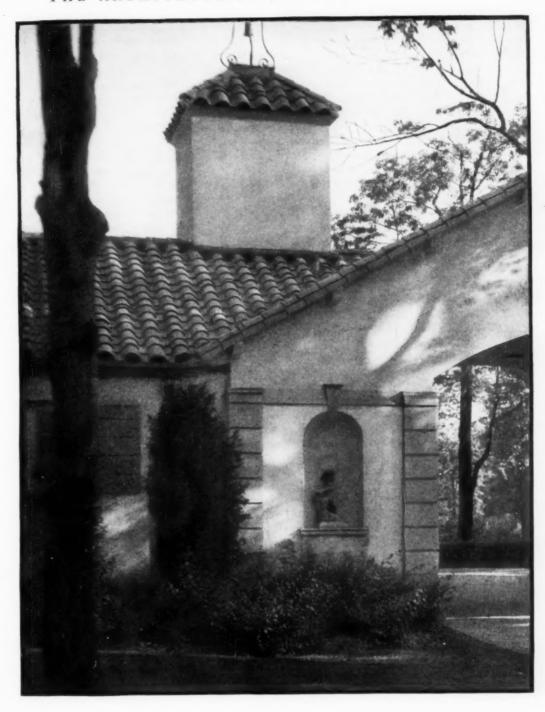
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ing with mirrored glass painted in Chinoiserie motifs. Powder rooms are walled with sectional mirrors. One powder room, which was converted from a coat closet, has pink walls, shading to a deep pink at the bottom; diamond shaped, blue backed mirrors and a blue ceiling studded with mirrored stars. Another illustration of an occasional room is that of a private bar with walls painted in scenes of Broadway in 1860 to suggest an old fashioned sidewalk bar. Painted walls are being used successfully in sunrooms as well as in less used portions of a house. The sunroom has evolved into a gay and cheerful meeting place for the blending of outdoor and indoor comforts. Elsie Cobb Wilson describes several examples of what has been done in such rooms. It is probably from the sunroom that the idea of garden rooms came into existence. Ruby Ross Wood discusses various methods of giving an illusion of outdoors to a city room. One delightful room of which she writes was built around an old English painting of a smocked gardener leaning on his hoe, with a prim Queen Anne garden around him. Roof gardens with their painted awnings and wrought iron wall decorations receive their due from Mrs. George Draper. The cheeriness of sunrooms is now being carried into that most essential of rooms, the kitchen. Perhaps the secret of keeping a contented cook may be found in the pages which give some colorful combinations showing possibilities in the adaptation of kitchen decorations of other lands. Irene Sidley lists some practical schemes for a French provincial kitchen together with two suggestions based on the sunny and cheerful kitchens of Portugal and Spain. Many other subjects are dealt with just as interest-

ingly. Richardson Wright, the editor, throws a new light on the adoption of color in this country. He believes that to some degree we can attribute our increasing interest in color to legislative Prohibition. "The tendency toward color may have been evident before Prohibition went into effect, but it did not enjoy universal acceptance until after the average man and woman found their habits repressed by legislation." He parallels the present enthusiasm for early American furnishings with probibitive legislation. This demand for early American decorations is one reason for the growing popularity of painted floor decorations. A monograph by Jane Stewart on stencil borders, spatter effects and checkered designs and their suitability to certain rooms gives exact information for the application of both the design and the paint. For those who like an occasional piece of painted furniture as well as for those who prefer groups of painted pieces for cheerful little cottages, there are two pages filled with sketches of unpainted furniture, both modern and period reproductions, with usable color suggestions. In the back of this volume, from which nothing seems to be lacking, there is a valuable list of publications concerning decoration, and also the names and addresses of decorators, architects and artists. The work will be useful not only to architects and interior decorators but likewise to that large and constantly growing number of home owners who are interested in decoration. Its illustrations have been admirably chosen.

HOUSE & GARDEN'S BOOK OF COLOR SCHEMES. By Richardson Wright and Margaret McElroy. 227 pp.,  $9\frac{1}{2}x$   $12\frac{3}{4}$  ins. Price \$5. Conde Nast Publications, Inc., 420 Lexington Avenue, New York.

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even a well known and standard work, and the History of Architecture, now appearing in its Eighth Edition, has been revised and enlarged, and considerable new matter has been added. The Eighth Edition possesses every valuable characteristic of the earlier editions, and it includes, besides, the results of recent travel and research to increase its value.

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### THE HOLABIRD & ROOT EXHIBITION November 21—December 12

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THE Architectural League of New York has instituted a series of one-firm or one-man exhibitions with a presentation of the work of Holabird & Root, of Chicago. This departure from its time honored custom of holding only one important exhibition each year, the annual show at either the Grand Central Palace or at the galleries of the National Academy of Design, is a step in the right direction. Such an immense number of photographs and drawings as well as material representing the arts and crafts and interior decoration is presented for inclusion in each of the annual exhibitions, that it is never possible to adequately present the work of any one man or one firm. It was therefore decided by the present Exhibition Committee of the Architectural League of New York to augment the annual exhibition by a series of smaller displays in the galleries of the Architectural League House. The present exhibition of the work of Holabird & Root will be followed, the latter part of December, by an exhibition of the work of Lee Lawrie, the well known architectural sculptor and designer. The third exhibition, which will open early in January, will present the work of Eliel Saarinen.

The value and importance of these one-man and one-firm exhibitions cannot be too strongly emphasized. It is fortunate for the profession in New York that the Architectural League has begun this important movement, which should be far-reaching in its effect upon the work of the profession locally. It is most important that one architect should be thoroughly acquainted with what other architects are doing. Such knowledge tends to give a more definite and uniform trend to architectural expression in the country as a whole. If architects are without contact with the work being done by the profession in other parts of the country, their work is likely to suffer through an over amount of individuality and narrowness of conception.

Although the architectural journals, as far as they are able in a limited amount of space, attempt to present from month to month as many examples as possible of the best work of every type being done in every section of the country, they are seldom able to devote the amount of space necessary to an adequate or complete presentation of the recent work of any man or firm, and yet unless such a complete presentation is made, it is impossible to obtain an adequate idea of the breadth and scope of the work of any firm or individual. The Exhibition Committee of the Architectural League of New York is to be congratulated upon its choice of the

work of Holabird & Root for the first of this series of one-man or one-firm exhibitions. Among the younger firms of Chicago architects, and both men the sons of architects prominent in Chicago 30 years ago, John Holabird and John Root have already made a definite impression on the architecture of their native city. Their work covers a variety of architectural types. Commercial buildings, hotels, restaurants, clubs and private houses are included in the recent examples of their work. Possessed of an unusual grasp of the underlying principles of architectural design, their buildings are a logical development of plan and elevation, of design and decoration. Embodying a distinctly new note and a fresh expression in architectural design, work of these young architects is making one of the most marked contributions to the present development of a distinctly American architectural style. Their work shows a marked appreciation of scale and proportion, a consummate understanding of the value of masses, and an unusual appreciation of the importance of a proper relation between window spacing and wall surfaces. Their buildings without exception possess unusual restraint and dignity, relieved by an intelligent and consistent use of appropriate ornament.

The exhibition of their work in the main gallery of the Architectural League House in New York is a remarkable example in itself of a superb presentation of carefully selected and architecturally arranged series of photographs, drawings and models. The restraint in their architectural designs is satisfyingly repeated in the delightful arrangement and balanced grouping of the exhibition itself. Although it is distinctly modern in conception but conservative in expression, the architects of New York should derive much information and receive fresh inspiration from a very careful and appreciative study of the splendid work of the firm of Holabird & Root.

#### NEW YORK APARTMENT HOUSE MEDALS

THE New York Chapter of the American Institute of Architects invites architects of apartment houses to compete for two "New York Apartment House Medals." The buildings to be listed as entries must have been erected in either Manhattan or Bronx and completed between October, 1928 and October, 1929. The entries are to be divided into two classes, one class consisting of buildings of six stories or under, while the other consists of structures of more than six. Entries must be submitted before December 15, 1929. Information regarding the awarding of the medals may be had of the Chairman of the Apartment House Medal Committee, Philip L. Goodwin, 607 Fifth Avenue, New York.



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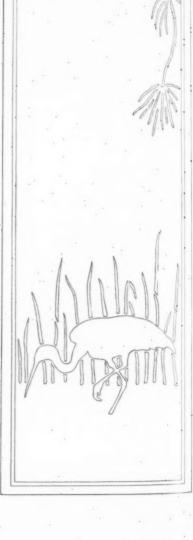
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leading personality in the world of art, Thomas Hastings, attained preëminence and held it longer than is the lot of most men. The series of great buildings which bear his name are known to his contemporaries at home and abroad. Two of his early works still stand forth as epoch making, the Ponce de Leon Hotel at St. Augustine, Florida, which immediately set a new standard in American architecture, and the Blair Building on Broad Street, New York, which marked the first step in the development of logical design for tall buildings. His most recent work was the redesigning and re-building of the senate wing in the capitol at Washington, and at the time of his death he was occupied on the architectural design of a new bridge to span the East and Harlem Rivers. Although Thomas Hastings has passed on, the rare charm of his personality lives in the hearts of a host of friends in whom, through a peculiar human quality inherent in a vivacious and ever youthful disposition, he inspired real and widespread affection. He loved people and people loved him. Socially and artistically the world loses in his passing, but his spiritual qualities so plainly characteristic will keep his memory intimately alive long

after most of his contemporaries are forgotten. He carried this precious active quality into his work. He be-lieved that no matter how great the demands on an architect's time might become, he should always draw and design every day and most of the day, and he lived up to this precept. His work, therefore, bore the un-

mistakable imprint of his individuality and had much of the humanness so characteristic of the designer.

He was fond of reading and even in these crowded modern days, amid the insistent social demands naturally made upon a man of his high prestige and great charm, he kept abreast of the best of contemporary thought. Interested in people, he was naturally income. great charm, he kept abreast of the best of contemporary thought. Interested in people, he was naturally interested in human affairs. These interests were widespread. He never lost touch with the Old World, and the Old World delighted to honor him. Chevalier of the Legion of Honor, member of the Institute of France, fellow of the Royal Institute of British Architects and Royal Gold Medalist in England, the two European countries he knew so well placed him high on their rolls of honor. In America every distinction that can come to an artist was his.

Everett V. Meeks.



Lucius M. Boomer



Thomas D. Green

# Editorial Advisory Committee

#### EDITORIAL FOREWORD

THE editors of The Architectural Forum take this opportunity to express to each member of the Editorial Advisory Committee and to each editorial contributor their sincere appreciation of the coöperation extended during the preparation of this Hotel Reference Number. This background of practical experience has enabled them to present a comprehensive treatise on hotel building which will prove invaluable.

It is a source of gratification to the editors to present to the architectural profession this Hotel Reference Number, which is the largest single issue of an architectural magazine yet published. It is only through the coöperation of the leaders in the hotel field—the Editorial Advisory Committee,—the architects who have specialized in hotel architecture, and the authorities on various phases of hotel engineering, equipment and business,—that such a volume of comprehensive and instructive material can be presented. The contents has been prepared and arranged for maximum usefulness, not only the editorial material but also the pertinent advertising pages.



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# ARCHITECTURAL FORUM

VOLUME LI

NUMBER SIX

### CONTENTS

### HOTEL REFERENCE NUMBER

#### PART ONE—ARCHITECTURAL DESIGN

Cover Design: Dining Room, Hotel Governor Clinton, New York From a Water Color by Roland Anthony Wank		El Mirador Hotel, Palm Springs, Cal. Walker & Eisen 1	36-138
The Editor's Forum Pag	e 33	Arizona Biltmore Hotel, Phænix, Ariz. Albert Chase McArthur 1	39-141
Thomas Hastings: An Appreciation	35	Hotel Hawthorne, Salem, Mass.  Smith & Walker and H. L. Stevens & Co. 14	42, 143
Royal York Hotel, Toronto From a Water Color by S. H. Maw	piece	Hotel Apache, Yuma, Ariz.  Gilbert Stanley Underwood & Co.	144
PLATE ILLUSTRATIONS Architect I	Plate	LETTERPRESS Author	Page
Santa Barbara Biltmore Hotel  Reginald D. Johnson 129	137	The New Hotel Parker Morse Hooper	583
Oasis Hotel, Palm Springs, Cal. Lloyd Wright 133,		Efficient Planning for Economical Operation  J. Otis Post	667
Molly Pitcher Hotel, Red Bank, N. J. Nathan Harris and Harris & Sohn	135	Hotel Decorations and Furnishings Henry J. B. Hoskins	702
PART TWO—ARCHITECTU	RAL	ENGINEERING AND BUSINESS	
Olympus, 1929 From an Etching by Gerald K. Geerlings	piece	Reduction of Noise in Hotels Clifford M. Swan	741
	Page	· Modern Kitchen Equipment Construction Victor R. Bliss	745
The Present Status of the Hotel Business James S. Warren	711	Requirements of Hotel Garage Design Roger B. Whitman	751
Making Hotels Financially Productive Preston J. Bradshave	715	Heating and Ventilating of Hotels Harry J. Cullen	755
Analyzing Hotel Financing Methods Paul Simon	720	Modern Hotel Lighting .1. D. Bell	761
Planning the Hotel for Maximum Flexibility and Utility William Hull Stangle	723	Consideration in the Selection of Elevator Equipment for Hotels Roger B. Whitman	765
Features That Make Hotels Profitable J. O. Dahl	728	Vacuum Cleaning in Hotels .1. Lincoln Scott	767
Modernizing Existing Hotels C. Stanley Taylor	731	Hotel Laundries Clifford Wayne Spencer	771
Hotel Front Office Equipment	737	The Building Situation	772

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Contributing Editors:

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# Their Walnut Partition Stirs Nationwide Admiration

"During the past few weeks, we have had numerous visitors from all over the country and without exception they have all expressed their admiration for the beautiful effect and the distinctiveness of the entire office . . . I want to thank you for the close attention you have given to the completion of this work."

—Sander Marcus, Vice-President, Ajax Hosiery Mills, New York

A A A

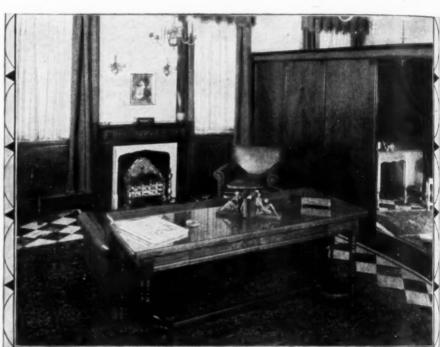
E HAVE been told by so many different architects, building owners and tenants that New Telesco is the most beautiful partition made, that we are beginning to believe it ourselves.

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One of the Telesco-Partitioned private offices at the Ajax Hosiery Mills, New York.

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Part One

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ROYAL YORK HOTEL, TORONTO

From a Water Color Drawing by S. H. Maw
ROSS & MACDONALD, ARCHITECTS
SPROATT & ROLPH, ASSOCIATE ARCHITECTS

## ARCHITECTURAL FORUM

VOLUME LI

NUMBER SIX



### THE NEW HOTEL

BY

PARKER MORSE HOOPER

HEN I asked Leonard Schultze to write on the modern hotel, he said frankly that he · had told all there was to tell as far as a general outline of the subject was concerned, in the brief article he wrote for the first Hotel Reference Number of The Architectural Forum six years ago in November. At that time hotel planning had already reached a high stage of development and perfection. Every known feature of comfort and service in plan and equipment had been carefully thought out, created and included. The past six years have shown little improvement in the designing and planning of hotels because there was little opportunity or room for further improvement. Architects specializing in this important field of design have devoted years of conscientious study and thought to the problem. In the designing of neither commercial structures nor hospital buildings has greater progress been made. So, although the new hotel of today may be and probably is bigger than the hotel of six years ago, there is little chance of its being better. As far as hotel planning is concerned, the problem remains unchanged. It involves, as always, the combination of two salient factors,-a suitable return on the money invested and maximum comfort and convenience for the hotel guest.

As far as exterior design is concerned, it is important today not to lose sight of the danger of a superficial modernism being mistaken for a basic modernism of structural principles. If we are to trade dignity for mere decorative tricks in architecture and call it "modernism," we will have made a poor exchange. The problem which every architect must face is that of evolving a simple and intelligent style in which to clothe modern construction, and anything else is not at all likely to be good architecture. Distinct from structure is plan, and it is safe to say that no building ever has been or ever will be better than its plan. A poorly planned building, no matter what may be

its architectural dress, will be a poor building, and this is no more or less true of the hotel than of any other type of building. Hotel planning has improved gradually through years of constant development and has now become an epitome of convenience and efficiency, as may also be said of hotel equipment. Advance, here, is brought into the consciousness of the public through even the daily press in articles such as those about the demolition of the old Waldorf-Astoria, which, when it was built some 35 years ago, was the last word in elegance and service. It was the model followed by designers of all large hotel projects for years afterward. Now it is out of date, old fashioned, uneconomical.

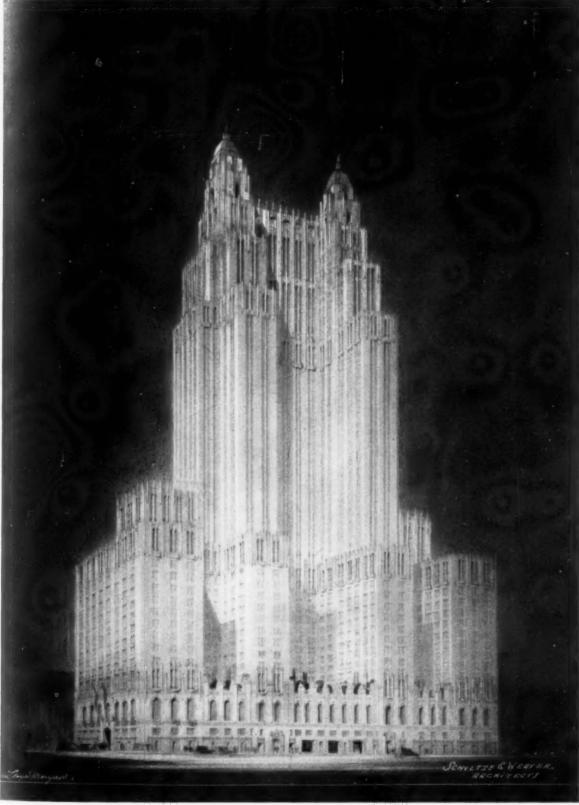
The new Waldorf-Astoria will be stylistically semi-modern and, in its planning, equipment and service, completely modern. It should, in this one of its many aspects, mark an epoch as definitely as did the old Waldorf-Astoria in its day. The new hotel will be definitely modern in mass, and modern in detail with such æsthetic reservations as not to inflict upon the eyes of 1940 or 1950 any mere transitory architectural fancy of 1930. And this will be as true within, where modernism will take the form of a certain sophistication in the treatment of an Empire-Directoire theme. Modernism that goes further than this is likely to find itself out of date, even if it is attractive to the more sophisticated mood and taste of the present moment.

It is not my intention here to go into details of the new Waldorf-Astoria, even though it might be fairly safe to guess that certain new features of its design will affect hotel design in general. The tower will be laid out in apartments for permanent guests, as in the Sherry-Netherland. About halfway up in the height of the building there is to be a large terrace roof garden, the kitchen of which, a complete unit, will not only serve the roof garden, but also room-service 20



Photo. Palmer Shannon

FINAL STUDY, WALDORF-ASTORIA HOTEL, NEW YORK SCHULTZE & WEAVER, ARCHITECTS



From a Rendering by Lloyd Morgan

PRELIMINARY STUDY, WALDORF-ASTORIA HOTEL, NEW YORK SCHULTZE & WEAVER, ARCHITECTS

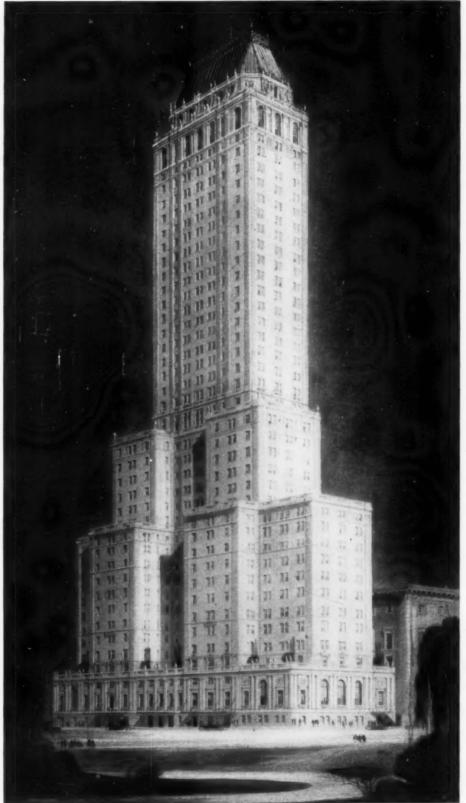


Photo. Palmer Shannon

From a Rendering by Lloyd Morgan

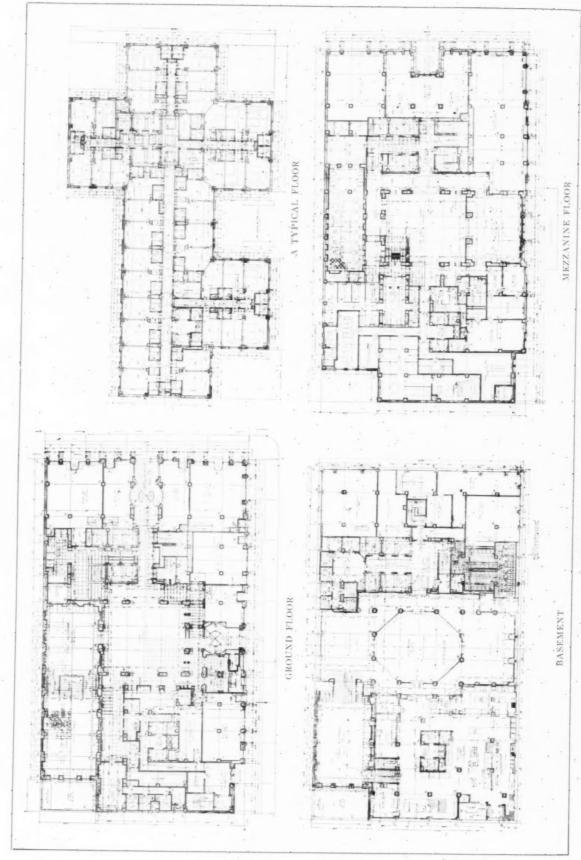
HOTEL PIERRE, NEW YORK SCHULTZE & WEAVER, ARCHITECTS



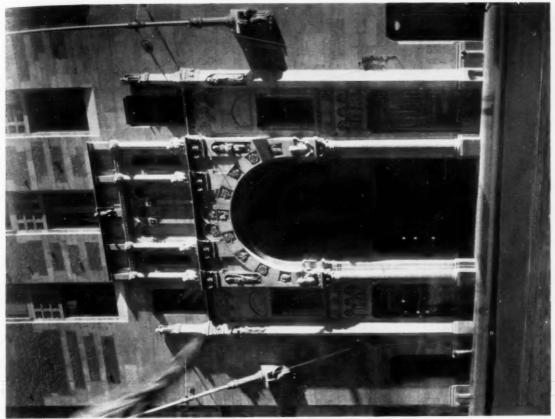
Photo. Palmer Shannon

From a Rendering by Chester B. Price

HOTEL LEXINGTON, NEW YORK SCHULTZE & WEAVER, ARCHITECTS

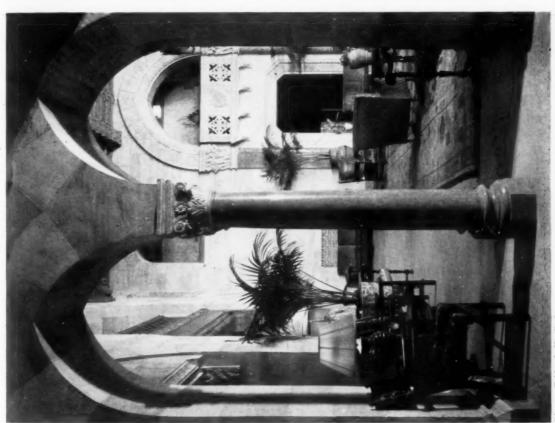


PLANS, HOTEL LEXINGTON, NEW YORK SCHULTZE & WEAVER, ARCHITECTS



ENTRANCE DOOR





obs & Knell, Inc. CORNER OF LOBBY



LOBBY



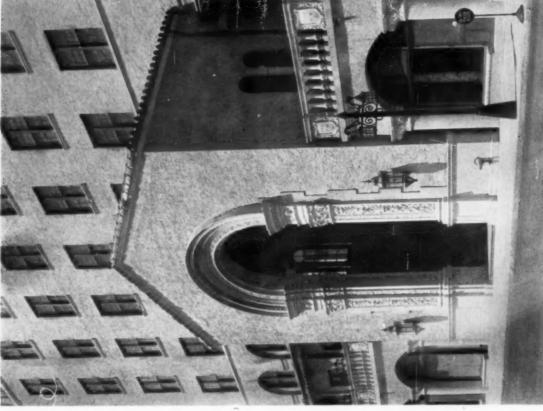
GRILL ROOM
HOTEL LEXINGTON, NEW YORK
SCHULTZE & WEAVER, ARCHITECTS

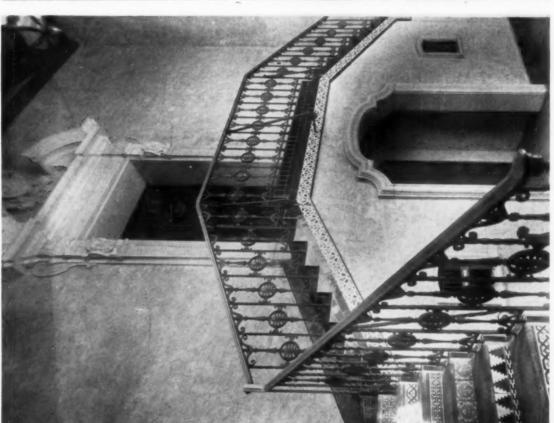


GENERAL VIEW



GARDEN ENTRANCE RONEY PLAZA HOTEL, MIAMI BEACH, FLA. SCHULTZE & WEAVER. ARCHITECTS

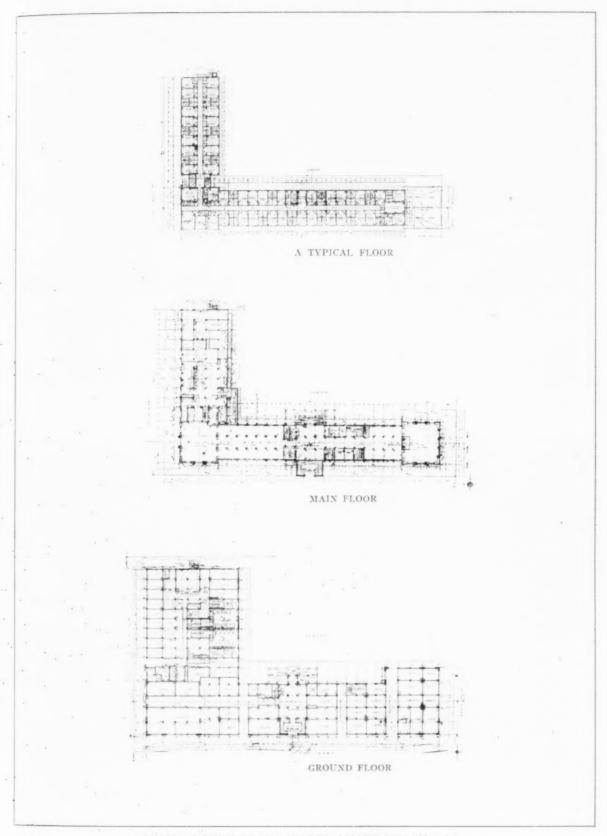




MAIN ENTRANCE

RONEY PLAZA HOTEL, MIAMI BEACH, FLA. SCHULTZE & WEAVER. ARCHITECTS





PLANS. RONEY PLAZA HOTEL, MIAMI BEACH, FLA. SCHULTZE & WEAVER, ARCHITECTS



ELEVATION ON WEST PEACHTREE STREET



Photos, Amemya

GARDEN FRONT
ATLANTA BILTMORE HOTEL
SCHULTZE & WEAVER, ARCHITECTS



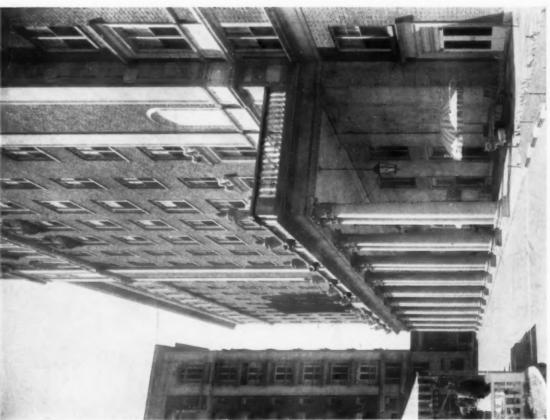
MAIN LOBBY



DINING ROOM
ATLANTA BILTMORE HOTEL
SCHULTZE & WEAVER, ARCHITECTS



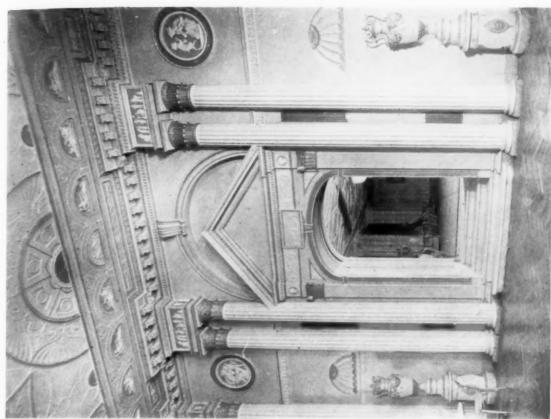




GARDEN PORTICO

ATLANTA BILTMORE HOTEL SCHULTZE & WEAVER; ARCHITECTS

SCHULIZE & WEAVER, ARCHITECTS

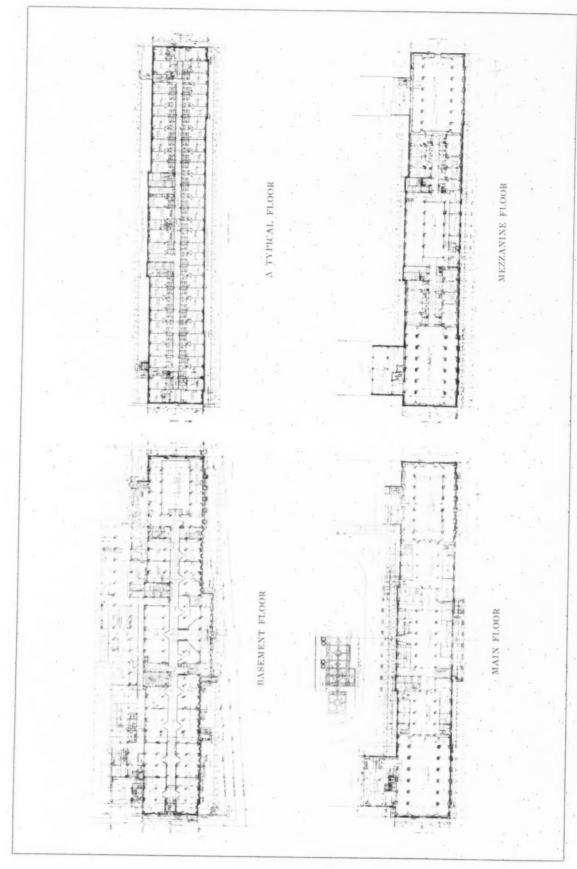


DOORWAY IN BALL ROOM



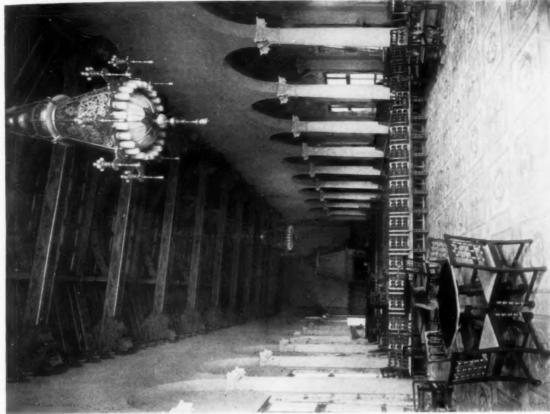


ENTRANCE TO MAIN DINING ROOM



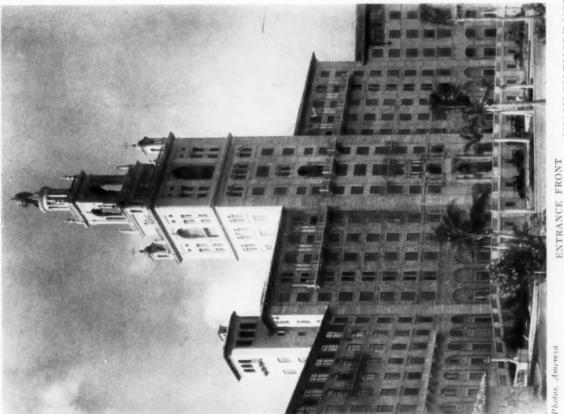
PLANS, ATLANTA BILTMORE HOTEL SCHULZE & WEAVER, ARCHITECTS

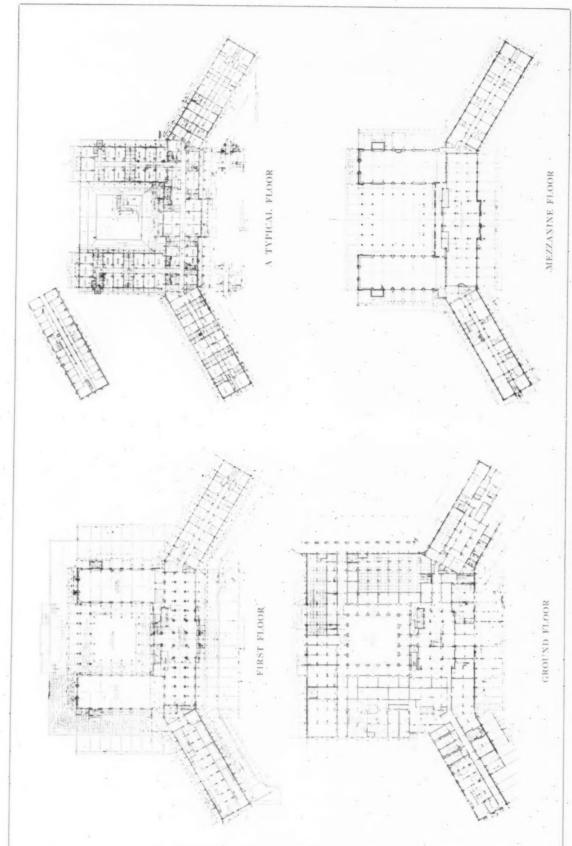
SCHULTZE & WEAVER, ARCHITECTS







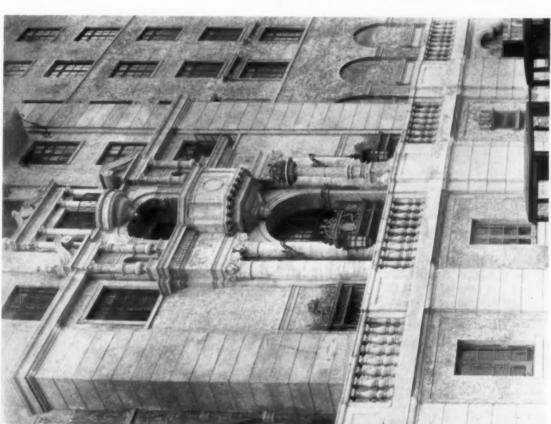




PLANS. MIAMI BILTMORE HOTEL, CORAL GABLES, FLA. SCHULTZE & WEAVER, ARCHITECTS







MIAMI BILTMORE HOTEL, CORAL GABLES, FLA. SCHULTZE & WEAVER, ARCHITECTS



Ocean Front, Miami Biltmore Hotel, Coral Gables, Fla. Schultze & Weaver, Architects

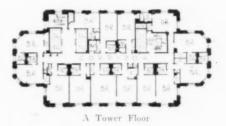
stories up and 20 stories down, thus avoiding a 40-story elevator run from the basement. Another kitchen will serve the main and private dining rooms and the large and small ball rooms.

Typical room floors have been laid out with the greatest possible flexibility in the way of combinations in suites. And as a means of giving greater floor space, built-in furniture will take the place of the customary bureau, chiffonier and dressing table. The beds, a few chairs and a writing desk will then be all that are necessary. Everything will be simple, attractive, efficient and conserving of space. The same principle was worked out in the Hotel Lexington, recently opened in New York. There is a definite stylization, here, a free rendering of the Italian Romanesque in the exterior design which carries into the entrance lobby and makes it in this sense a part of the exterior design. Otherwise style has been a point of departure rather than an objective, and many distinctly modern notes, as in the lighting fixtures, give a keynote that links old and new in a logically rationalized expression of the best in both. The same principle has been carried out in the bedroom suites, where the living rooms are furnished with period pieces, mostly Georgian, and the bedrooms with specially designed sets that represent a carefully restrained version of the modern mode. This is particularly true in the main lobby of the hotel, which is distinctly Italian in design and furnishings, carried out with a refreshing freedom of conception. The great center chandelier of this room shows in a splendid manner the modern influence on lighting fixtures.

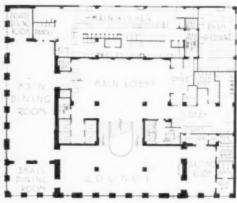
The idea I really want to express here is my feeling that the new hotel, any more than any other important building of our times, does not need to create overnight a whole new heaven and earth. It would be very unfortunate if it did attempt to do this, and the result would inevitably be an architectural fiasco on a large scale. Styles must be given time to evolve, to adjust themselves to the taste of a period, not to that of a single year. True design cannot be synthetic, nor can it be transplanted. The gradual fusion of one style, one kind of taste with another is a matter of development. It takes time. No good comes of impatience to achieve something entirely new and different,-in architecture particularly. Chesterton was impressed by the permanency of architecture when he said that if you do not like a poem you have written, you can tear it up; or if the picture you have painted is disappointing, you can turn its face to the wall;-but that neither can possibly be done with a city hall or a cathedral.



THE Sir Francis Drake Hotel has 494 guest rooms and 460 baths. The capacity of the dining rooms is 644. The building is of steel frame and concrete fireproofing construction, exterior is of brick and terra cotta; interior walls are of plaster on tile and concrete partitions. Public spaces have marble and wood floors. Guest rooms and corridors have carpet over concrete. Windows are double-hung, wood frames in the guest rooms and metal frames in public rooms.







View from Side Street

Sir Francis Drake Hotel, San Francisco Weeks & Day, Architects

Second Floor Plan



Photo. Gabriel Moulin

VIEW FROM NOB HILL



Photo. Ralph Young Studios

GRAND STAIRCASE
SIR FRANCIS DRAKE HOTEL, SAN FRANCISCO
WEEKS & DAY, ARCHITECTS



MAIN LOBBY



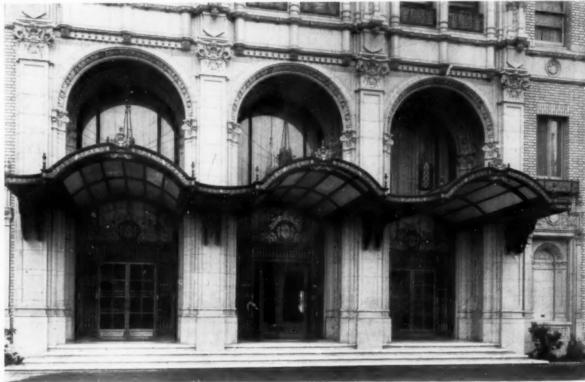
Photos, Ralph Young Studios

LOUNGE SIR FRANCIS DRAKE HOTEL, SAN FRANCISCO WEEKS & DAY, ARCHITECTS



General View

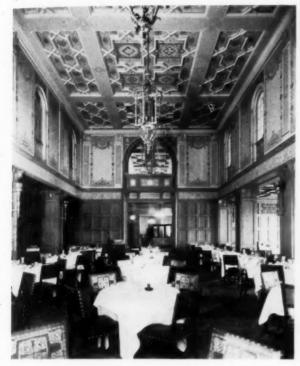
WO years older than the Sir Francis Drake Hotel, less of the modern spirit is found in the exterior design and interior decoration of the Mark Hopkins Hotel. It possesses an interesting plan cleverly worked out to fit a hillside location, and has a corner entrance. It is slightly smaller in size than the Sir Francis Drake, but it also caters to an exclusive clientele. The interior furnishings and decorations as well as the architecture are simpler in character and rather more Italian in feeling. The suggestion of Italian inspiration is clearly evident in the arcaded windows of the dining room, the painted beam ceiling in the lobby, and the wall and ceiling decorations in the grill room. The ball room, otherwise known as the "Room of the Dons," on account of the mural paintings above its high paneled wainscoting, is a very colorful and interesting room. It is refreshing to find so vigorous and unusual a decorative treatment for a ball room. In the Sir Francis Drake the interior architecture and decorations are richer and more elaborate. Marble covered and paneled walls are found in most of the public rooms. The treatment of the main lobby and staircase suggests a free adaptation of the architectural decoration of the Francis I period. The complete dissimilarity of the two plans is interesting. In the



Photos. Gabriel Moulin

Main Entrance

MARK HOPKINS HOTEL, SAN FRANCISCO Weeks & Day, Architects



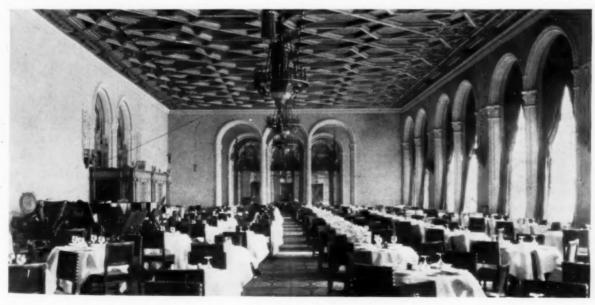
Grill Room



Lobby

Drake Hotel we find a rectangular plan for the public floors with an L-shaped plan for the majority of the bedroom floors. The plan of the Mark Hopkins Hotel is in the shape of the letter U above the three lower floors. One great advantage in both of these layouts is that all of the bedrooms have outside windows. Weeks & Day, the architects, deserve much credit for the care-

fully worked out plans and interesting treatment. The two-pipe system of steam heating is used. There is mechanical ventilation in the public spaces, work rooms, basement and all bathrooms. The cubic contents is 3,800,000, the cubic foot cost 55 cents, and the total cost \$2,100,000, including fees, but exclusive of furnishings, furniture and kitchen equipment. It was built in 1926.



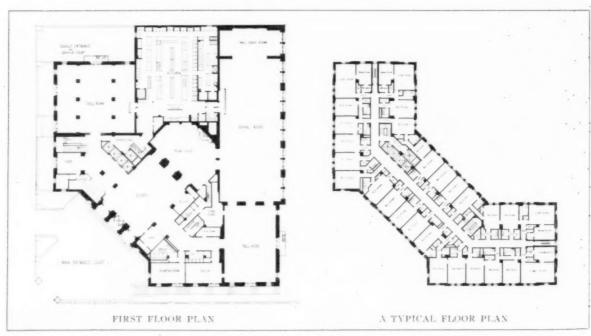
Main Dining Room

MARK HOPKINS HOTEL, SAN FRANCISCO

Weeks & Day, Architects



ONE END OF BALL ROOM



MARK HOPKINS HOTEL, SAN FRANCISCO WEEKS & DAY, ARCHITECTS

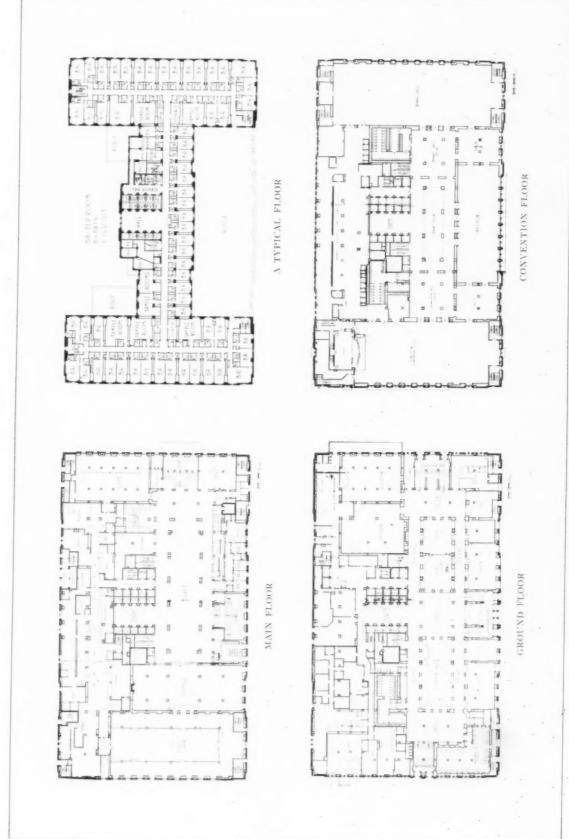


Royal York Hotel, Toronto Ross & Macdonald, Architects Sproatt & Rolph, Associated

See Frontistice

THE Royal York Hotel, one of the finest in the Dominion of Canada, is the latest addition to the chain of hotels of the Canadian Pacific Railway. It occupies an excellent location, fronting on Lake Ontario. The building is unusually well planned, so that every room is an outside room, providing for a maximum amount of light and air. There are 1,002 guest rooms and 999 baths. The dining rooms accommodate 1,330. The seating capacity of the ball room for a banquet is 650 and for a convention or concert 855.

The architectural treatment of the exterior walls, which are of limestone, is simple. Reinforced concrete floors and tile and concrete partitions are used in the interior. The public spaces have marble, tile and terrazzo floors, and the guest rooms, cement, except in the suites where oak parquetry is used. The windows are typical steel and wood, double-hung. There is direct and indirect heating for the public rooms, kitchens, laundry, etc., and direct for the bedrooms. Steam is supplied from an outside central plant nearby.



PLANS, ROYAL YORK HOTEL, TORONTO ROSS' & MACDONALD, ARCHITECTS: SPROATT & ROLPH, ASSOCIATED



MAIN LOBBY CEILING AND CHANDELIER
ROYAL YORK HOTEL, TORONTO
ROSS & MACDONALD, ARCHITECTS; SPROATT & ROLPH, ASSOCIATED



MAIN LOBBY



Photos, Bridgen's, Ltd.

MAIN DINING ROOM
ROYAL YORK HOTEL, TORONTO
ROSS & MACDONALD. ARCHITECTS; SPROATT & ROLPH, ASSOCIATED



LOUNGE



Photos. J. P. Grahan

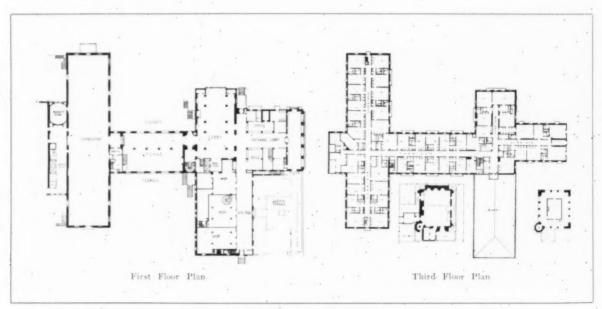
LOBBY
DEL MONTE HOTEL, DEL MONTE, CAL.
LEWIS P. HOBART AND CLARENCE A. TANTAU. ARCHITECTS



A General View of One of the Wings from Swimming Pool

 $\mathbf{F}^{\mathrm{OR}}$  a suburban hotel containing only 110 lavatories. From this lobby on one side there guest rooms, the plan of the Del Monte is extends a wing, on the first floor of which are convenient and interesting. It is of a rambling design with many wings. Above the unusually high first story there are only two floors of bedrooms; with each room a bath is connected. The hotel is entered from a long arcaded loggia extending across the front of one of the wings. From this entrance loggia the main lobby of the hotel is reached through an entrance hall, on either side of which are located coat rooms and

located three shops and a long sun porch which opens upon a terraced garden. At the opposite end of this center of the lobby, just a short distance from the hotel, there is a large swimming pool which is one of the many attractive features of this suburban hotel. Beyond the lobby in the opposite direction from the main entrance is a large lounge, which opens onto attractive terraces on both sides. Beyond the lounge a few steps lead



Del Monte Hotel, Del Monte, Cal. Lewis P. Hobart and Clarence A. Tantau, Architects



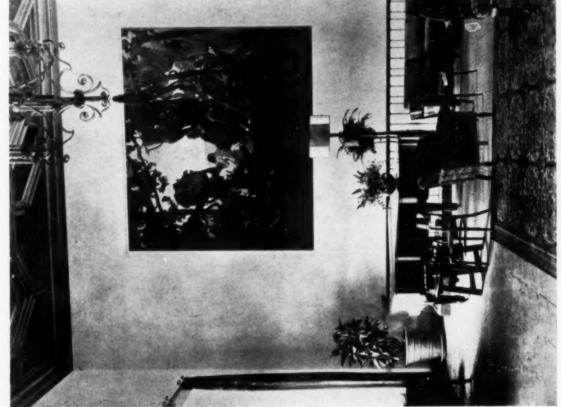
View of Entrance Facade

up through a wide archway into the lobby of the great dining room. This room is impressive in its length and proportions, as it runs the entire length of the rear wing of the hotel. As the plan of this particular building is in the shape of the letter H, this great dining room has windows on three sides. The unusual ceiling height of the main floor gives dignity to the dining room. It accommodates 800, the grill room 400, and the auditorium 300. The building is of reinforced con-

crete construction. Reinforced concrete and artificial stone trim are used on the exterior, and terra cotta tile and plaster partitions with hardwood trim on the interior. The floors are of reinforced concrete, except in the public rooms, where tile floors are used. The windows are of wood. Heating is by steam of the two-pipe system, and ventilation is by forced draft. The total cost of the hotel and eight cottages was \$1,825,-000. The building was completed in May, 1926.



Del Monte Hotel, Del Monte, Cal. Lewis P. Hobart and Clarence A. Tantau, Architects



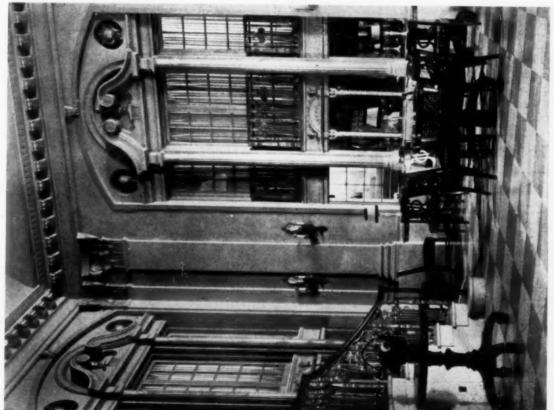


FIREPLACE IN THE LOBBY DEL MONTE HOTEL, DEL MONTE, CAL.
LEWIS P. HOBART AND CLARENCE A. TANTAU, ARCHITECTS



LOBBY

HOTEL PEABODY, MEMPHIS W. W. AHLSCHLAGER, ARCHITECT



TEA ROOM

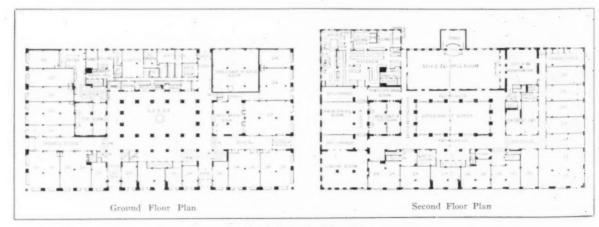


Photos. Tebbs & Knell, Inc

General View

I T is interesting to find in Memphis a hotel designed by one of the leading Chicago architects, W. W. Ahlschlager, the designer of several of the largest hotels and theaters in this country. Occupying an entire city block, the first two stories completely fill the land area, while the nine stories of bedrooms are U-shaped in plan. The only photograph obtainable of the exterior of the building is unfortunately a view from a position

which gives little idea of the architecture. The hotel has long span concrete joist construction. Terra cotta and pressed brick are used on the exterior, and marble, tile, wood, and plaster on the interior. The floors are of marble and cement. Vacuum steam high pressure heating is used. There is ventilation in all the public rooms. The cost per cubic foot was 48 cents without furnishings or equipment. Cost was \$2,550,000 in 1925.



Hotel Peabody, Memphis W. W. Ahlschlager, Architect



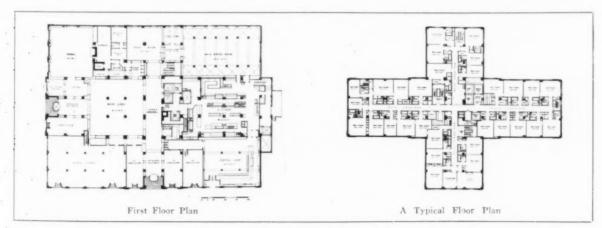
Preliminary Study



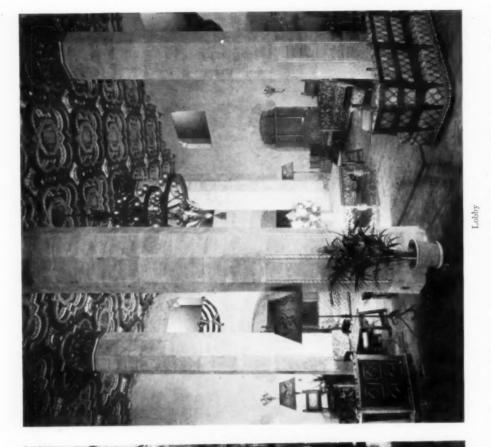
General View

THE Hotel Westward Ho is one of the most recent outstanding examples of hotel building in the southwest. It is interesting in both plan and design. The two first stories, the lower of which includes shops on the ground floor, are rectangular in plan, occupying the entire block area. The design is simple and straightforward in character, enriched by ornate Baroque Spanish ornament around the entrance door and the open loggia on the fifth floor of the tower. The interior architecture combines motifs from the Mexican, Spanish and Italian Renaissance styles, includ-

ing an exterior decorative treatment suggesting the old chapels of northern Spain. Every effort was made to carry out in accurate detail a modern adaptation of the architecture of ancient days. The hotel contains 304 guest rooms and 278 baths. The dining room, which is Pompeian in character, has a seating capacity of 300. The banquet room or ball room has a seating capacity of 325 guests and follows the architecture of northern Spain. The building is of reinforced concrete construction, the exterior walls being covered with stucco of textured finish. The



Hotel Westward Ho, Phœnix, Ariz. Louis L. Dorr, Architect

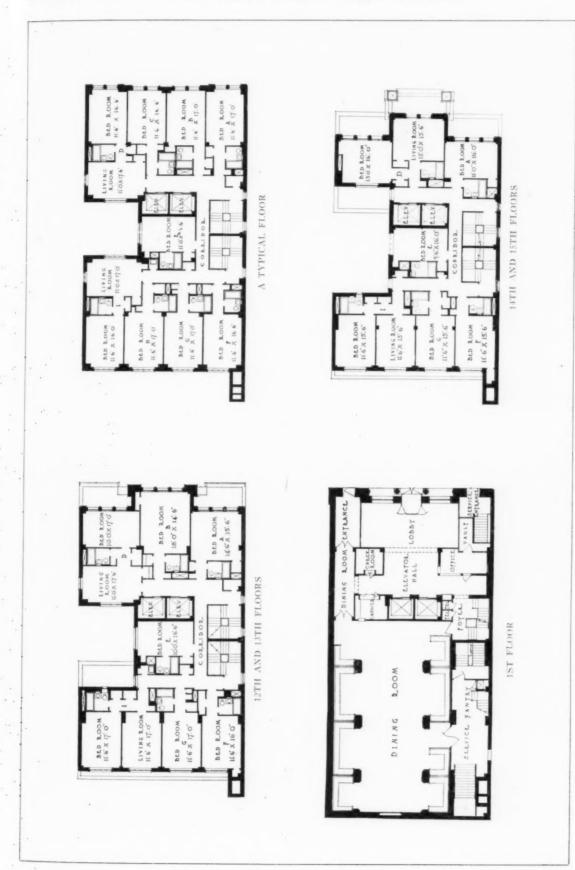




main hotel lobby, from tiled floors to richly ornamented ceilings, is true to type to the last detail of the styles borrowed from Spain by the Mexicans. The walls of the main lobby are of travertine. The dining room, ballroom, lounge, palm room and foyers have walls of textured plaster with travertine trim, while the bedroom walls are of smooth plaster.

The heating plant of the hotel consists of high pressure boilers, including boilers which supply the steam to the kitchens and laundry. The heating system is of the two-pipe vacuum return design. The total cubic contents is 2,492,369 cubic feet, making a cost of 56 cents per cubic foot, or \$4,500 per room, and a total cost of \$1,572,000 in 1928.

Hotel Westward Ho, Phænix, Ariz. Louis L. Dorr, Architect Louis L. Dorr, Architect

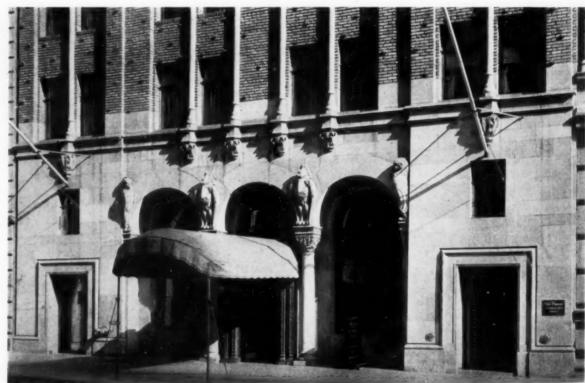


PLANS, HOTEL DUANE, NEW YORK ANDREW J. THOMAS, ARCHITECT

THE Hotel Duane in New York is a small and exclusive residential hotel located in the heart of the still select Murray Hill district. Sandwiched in as it is between the Fraternity Clubs building on the north and the Democratic Club on the south, it occupies the site of two residences. In this limited space, approximately 50 feet wide by 100 feet deep, Andrew J. Thomas, the architect, has worked out a very compact, practical plan. One enters directly from the sidewalk level into a shallow lobby, beyond which is the elevator hall. As this hotel has only 149 guest rooms and is strictly a residential hotel rather than of the transient type, no large lounge or entertaining rooms are needed. For this reason half of the lower floor is devoted to a large dining room and service pantry.

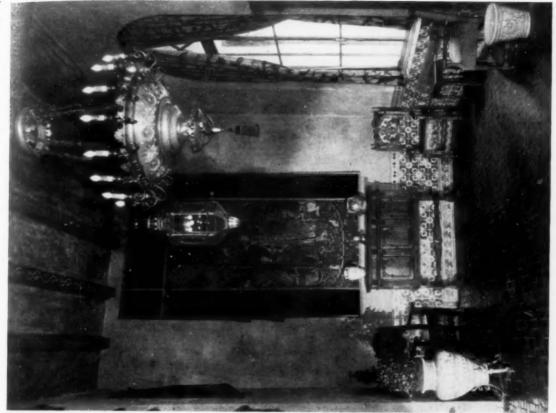
In design the exterior of the building indicates a free interpretation of the Italian Romanesque style harmonizing very well with the Fraternity Clubs building at the north, designed in a similar style. The entrance lobby and dining room are unusually attractive in a rather free interpretation of Spanish Renaissance decoration. The floors are deep toned tile and terrazzo contrasting pleasantly with rough plaster walls and beam ceilings. The furniture, draperies and lighting fixtures are all carried out in the Spanish style. The Duane was completed in 1927. Steel frame construction, concrete floor slabs, brick, hollow tile and stone were used in its construction. Granite, cast stone and face brick were the materials of the front elevation. Plaster, marble, and tile were used on the interior. Casement windows having steel frames and sash were used throughout. The heating is by the vacuum system, the steam being supplied from the outside. A complete ventilating system with blowers, exhausters, air filters, tempering stacks and direct heating was installed.





Photos. George H. Van Anda

Hotel Duane, New York Andrew J. Thomas, Architect



LOBBY
HOTEL SCHROEDER, MILWAUKEE
HOLABIRD & ROOT, ARCHITECTS



y an Anda HOTEL DUANE, NEW YORK ANDREW J. THOMAS, ARCHITECT



Photos Amount

Savoy-Plaza Hotel, New York McKim, Mead & White, Architects

T Fifth Avenue, 58th and 59th Streets in New York, for a great many years stood the Savoy Hotel. In its day it had been a well known hostelry, but with the erection of the new Plaza Hotel across the square the Savoy gradually lost its position as one of the foremost New York hotels. In 1926 it was demolished, and on its site McKim, Mead. & White erected the Savoy-Plaza Hotel. which now dominates the square. In exterior design this great hotel is one of the finest in the country. In the relation of its masses and set backs, the design is particularly satisfying. Facing Fifth Avenue, wide bays 16 stories in height rise at each of the four corners. Low set backs four stories in height crown these bays, appearing in design as buttresses to the huge central mass of the hotel, which rises to a height of 30 stories surmounted by a very high hip roof suggesting the French chateau style. From the arcaded entrance floor with its Ionic pilaster treatment to the dormers on the roof line, a modern interpretation of Italian classic detail has been consistently carried out. In plan the three lower stories occupy the entire rectangular plot. Starting with the fourth floor, the plan takes the shape of the letter H, which arrangement permits every bedroom in the hotel to have outside light and air. In plan and general mass the Royal York Hotel in Toronto is quite similar to the Savoy-Plaza, although occupying a greater land area. Consistent with the plan of all modern city hotels, the three street sides of the entrance floor are given over to shops. This arrangement need in no way detract from the dignity or character of a hotel, but on the other hand provides a most practical and direct method of assisting in the permanent financing of the hotel. The plan of this. hotel is unusually convenient, and logical. On the first or ground floor there are entrances on all three sides. To avoid the congestion of traffic on Fifth Avenue,

the principal entrance is on 58th Street, which happens to be an east-bound street, so that vehicular approach to the hotel is directly gained from Fifth Avenue. Entering the main fover from 58th Street, a wide lobby and corridor lead through the hotel to 59th Street. Opening off this lobby are the eight elevators and the principal stairway leading to the second or main floor. Also off of this central corridor is the entrance to the dining room which occupies a large part of the rear of this floor. Adjacent to this dining room on the 58th Street front is a lounge or reception room. On the second floor are a large central lounge and several smaller rooms used for private dinners and receptions. On the Fifth Avenue and 59th Street sides of this floor shops are also located. The interior decorations throughout are rich and colorful adaptations of the Italian and French Renaissance styles. The reception room at the right of the entrance on the first floor is in the Louis XV style.

One

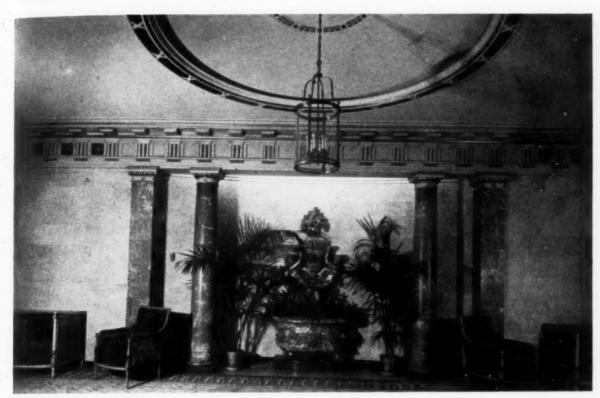
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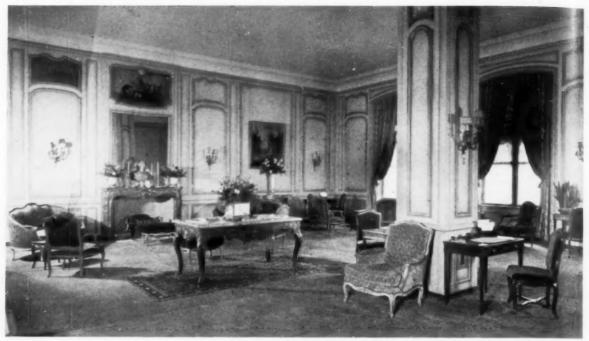
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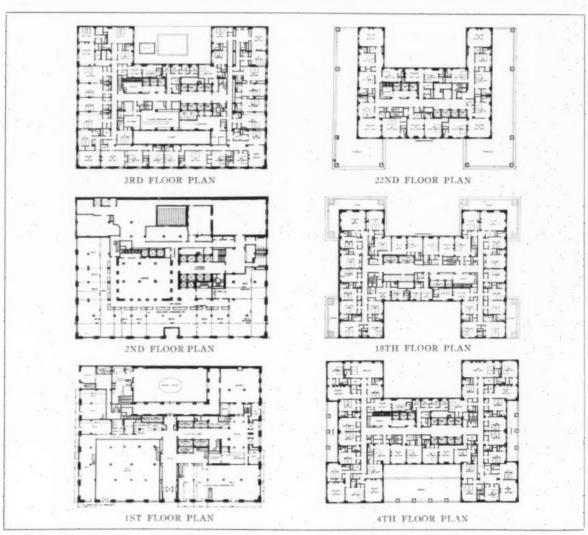
DETAIL OF MAIN LOUNGE



DINING ROOM
SAVOY-PLAZA HOTEL, NEW YORK
McKIM, MEAD & WHITE, ARCHITECTS



RECEPTION ROOM ON FIRST FLOOR



SAVOY-PLAZA HOTEL, NEW YORK McKIM, MEAD & WHITE, ARCHITECTS

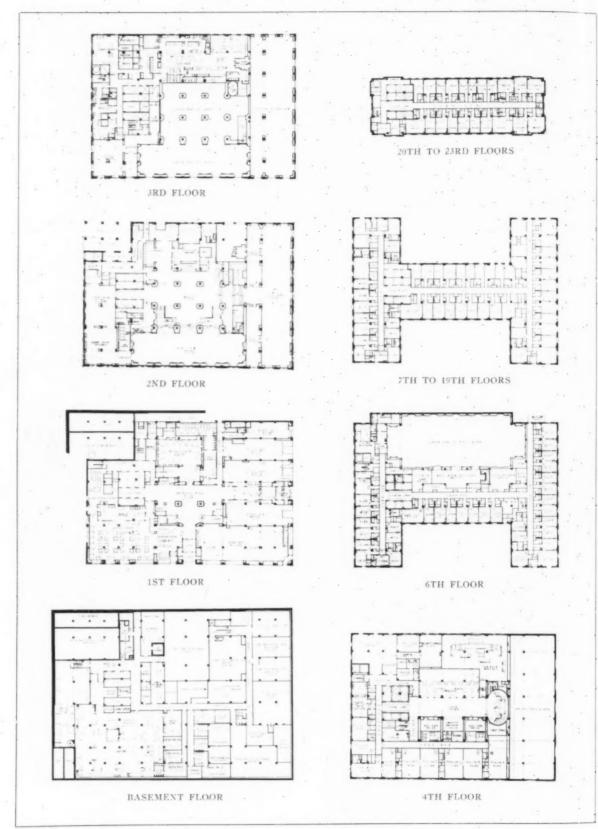


Photo, Fahsel & Weller

Hotel Schroeder, Milwaukee Holabird & Root, Architects

THIS straightforward and splendid piece of hotel designing is carried out in the modern manner, Dignity and simplicity and lack of architectural decoration characterize the exterior. Again the H-shaped plan has been used for 13 of the stories, an arrangement which permits all of the rooms to have outside light and air. Completed in 1927, this hotel is of fireproof construction with steel frame and concrete arch floors. For the exterior walls stone was used

for the first four stories and brick for all above. Every one of the 820 bedrooms has its individual bath. The capacity of the combined dining rooms is 800, and that of the ballroom 1,200. The building contains, 5,957,000 cubic feet and was built at a cubic foot cost of approximately 67 cents, amounting to a total cost of approximately \$4,000,000. In the article on page 702 by Mr. Henry J. B. Hoskins of the firm of Holabird & Root several illustrations of interiors are shown.



PLANS, HOTEL SCHROEDER, MILWAUKEE HOLABIRD & ROOT, ARCHITECTS

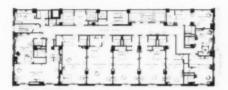
One



23rd Floor Plan



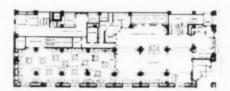
4th to 22nd Floor Plan



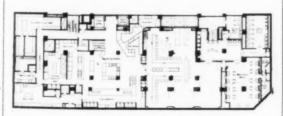
3rd Floor Plan



2nd Floor Plan



1st Floor Plan



Basement Plan



Photo. Eugene Taylor

Hotel Lennox, St. Louis Preston J. Bradshaw, Architect

THE Hotel Lennox in St. Louis is an excellent example of a moderate sized, well planned city hotel. The lot on which it stands is a block in length but quite shallow in depth, which greatly influenced the plan and arrangement. It contains 315 guest rooms, each with a private bath. The seating capacity of the dining rooms is 220 people. The building is of reinforced concrete construction, and brick and terra cotta were used on the exterior. Windows are double-hung. The hotel contains 1,713,920 cubic feet and was built at a cost of 69 cents per cubic foot in 1929.



Photo. Alexander E. Piaget

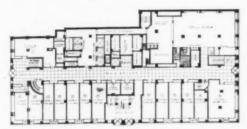
LOBBY



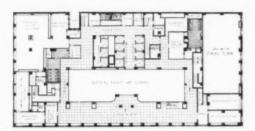
MAIN DINING ROOM
HOTEL LENNOX, ST. LOUIS
PRESTON J. BRADSHAW, ARCHITECT



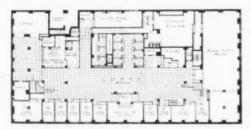
A Typical Floor Plan



Second Floor Plan



Mezzanine Floor Plan



First Floor Plan

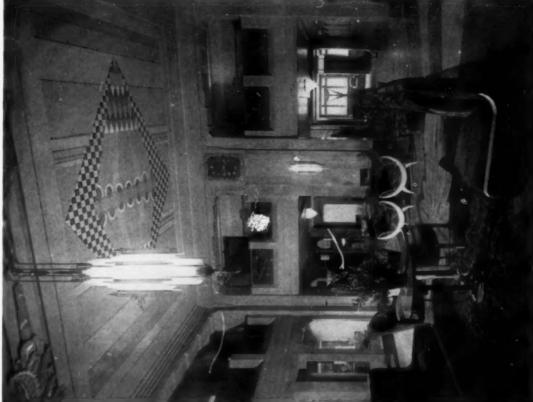


Basement Plan



Hotel Lincoln, New York Schwartz & Gross, Architects

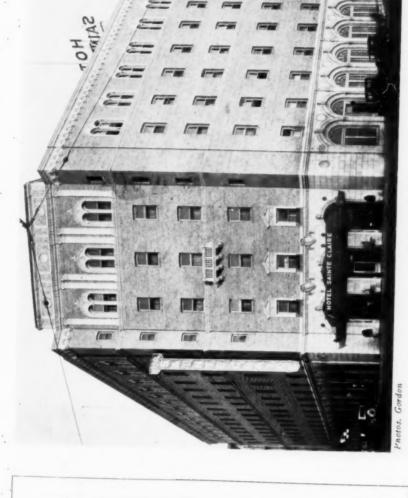
THE Hotel Lincoln is the tallest residential structure and the largest hotel in the Times Square district of New York. It contains 1,400 outside rooms, each with a private bath and shower. It is one of the few New York hotels provided with a hospital, which is thoroughly modern in its equipment, and serves guests, employes, and outside patients of the resident physician. Completed in 1928 at a time when great interest was being taken in the modern expression in interior decoration and furniture, it is not surprising to find in all of the public rooms of this hotel original and colorful examples of modern furniture and decoration. Carried out under the masterful direction of Jacques Delamarre, the architectural director of the Chanin Construction Co., which financed and built this hotel, a thoroughly consistent and logical scheme of decoration has been created throughout the house.





MAIN LOBBY HOTEL LINCOLN, NEW YORK SCHWARTZ & GROSS, ARCHITECTS
INTERIORS, J. L. DELAMARRE, ARCHITECTURAL, DIRECTOR, CHANIN CONSTRUCTION CO. ENTRANCE STAIRS

AMARKE, ARCHITECTURAL DIRECTOR, CHANIN CONSTRUCTION CO.



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the meth  A Typical Floor Plan

Entrance Front

Weeks & Day, have designed in a logical and attractive IN the Sainte Claire Hotel at San Jose, Cal., the architects, way an excellent small city hotel. The peculiar shape of the site, which occupies a corner facing on two principal thoroughfares, greatly influenced the plan. Suggesting somewhat the plan of the Mark Hopkins Hotel in San Francisco, by this same firm of architects, the main entrance was placed at the corner, permitting an interesting recessed entrance bay at this point. Only six stories in height, with one street front

occupied by small stores and a coffee shop on the ground floor, it was necessary to place the dining room and lounge at the rear of this floor. Between these two important public rooms it was possible to locate an interesting open court or patio 174 bathrooms. The dining rooms accommodate 444 people. The lighting is direct, and the heating is by steam of the two-pipe system. There is mechanical ventilation with center fountain and side arcades. This hotel contains 184 guest rooms and in the public rooms on the first floor, basement rooms and bathrooms. The building contains 1,440,000 cubic feet and was built at a cost of 52 cents per cubic foot, The total cost was \$750,000. The hotel was completed in October, 1926.

Hotel Sainte Claire, San Jose, Cal. Weeks & Day, Architects

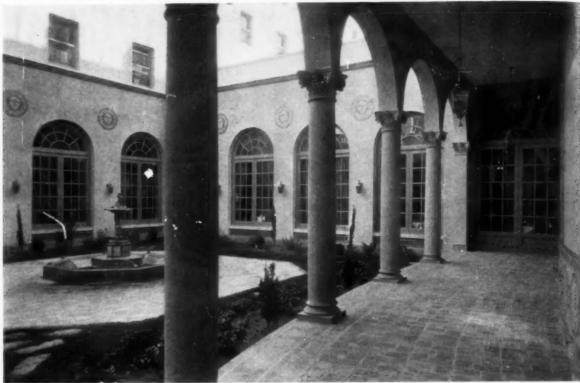


Photo. R. J. Waters & Co.

PATIO

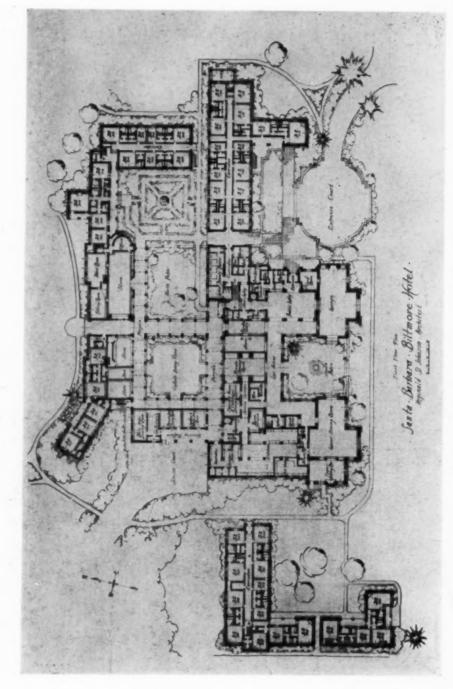


OFFICE AND LOBBY
HOTEL SAINTE CLAIRE, SAN JOSE, CAL.
WEEKS & DAY, ARCHITECTS

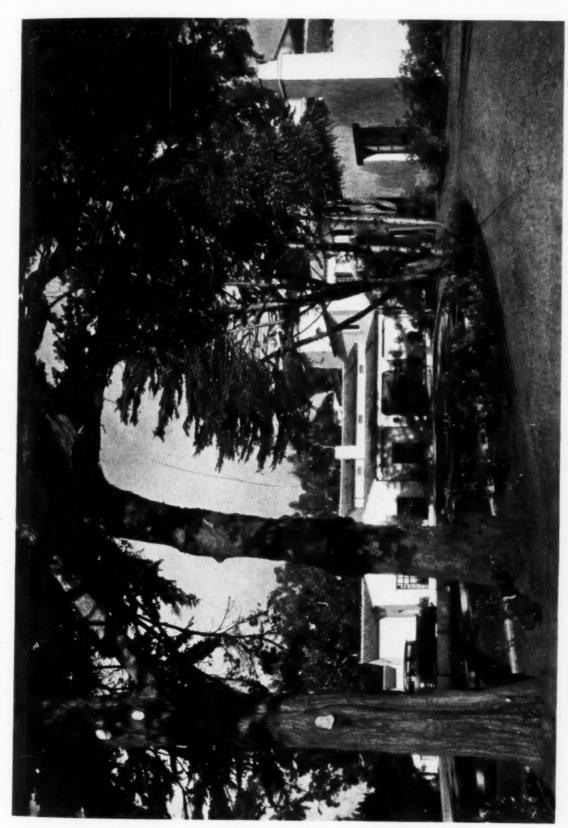


Photo. Padilla Co.

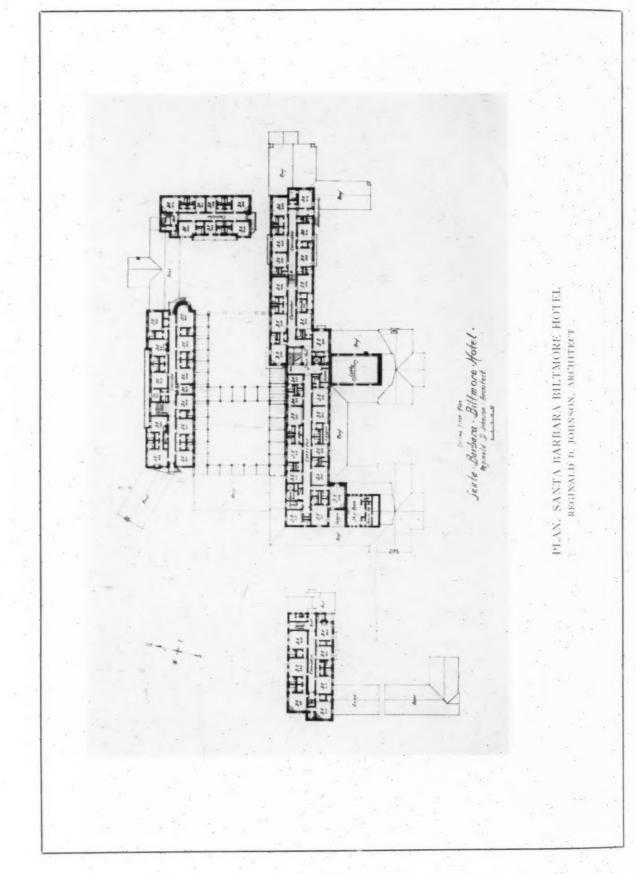
SANTA BARBARA BILTMORE HOTEL REGINALD D. JOHNSON, ARCHITECT

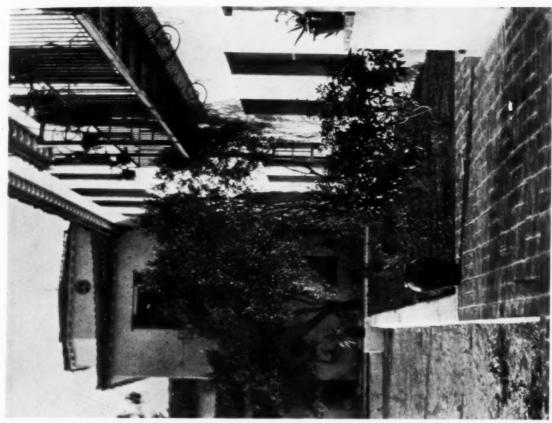


PLAN. SANTA BARBARA BILTMORE HOTEL REGINALD D. JOHNSON, ARCHITECT



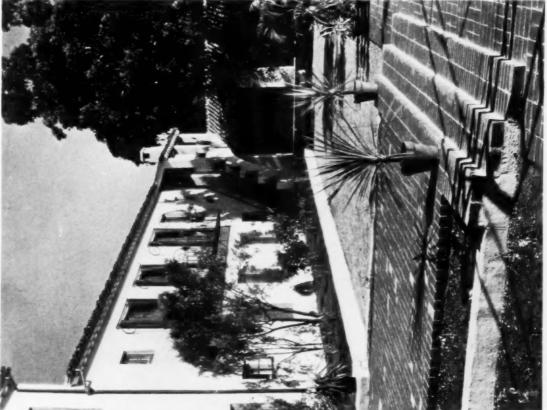
SANTA BARBARA BILTMORE HOTEL REGINALD D. JOHNSON, ARCHITECT ENTRANCE COURT











Year of completion: 1927.

Type of construction: Main building, reinforced concrete; cottages, frame construction, tile roofs.

Exterior materials: Main building, reinforced concrete; cottages, plaster.

Interior materials: Main building, plaster; cottages, plaster.

Floors: Wood and tile. Windows: Steel sash.

Lighting: Conduit.

Heating: Steam.

Ventilating: Mechanical ventilation in principal public rooms and kitchen.

Number of guest rooms: 120, including main building, annex and cottages.

Number of bathrooms: 120, including main building, annex and cottages.

Capacity of dining room: 300 persons.

Number of cubic feet: 232,831, including main building, annex and cottages.

Cubic foot cost: Main building, 50 cents; frame buildings, 39 cents.

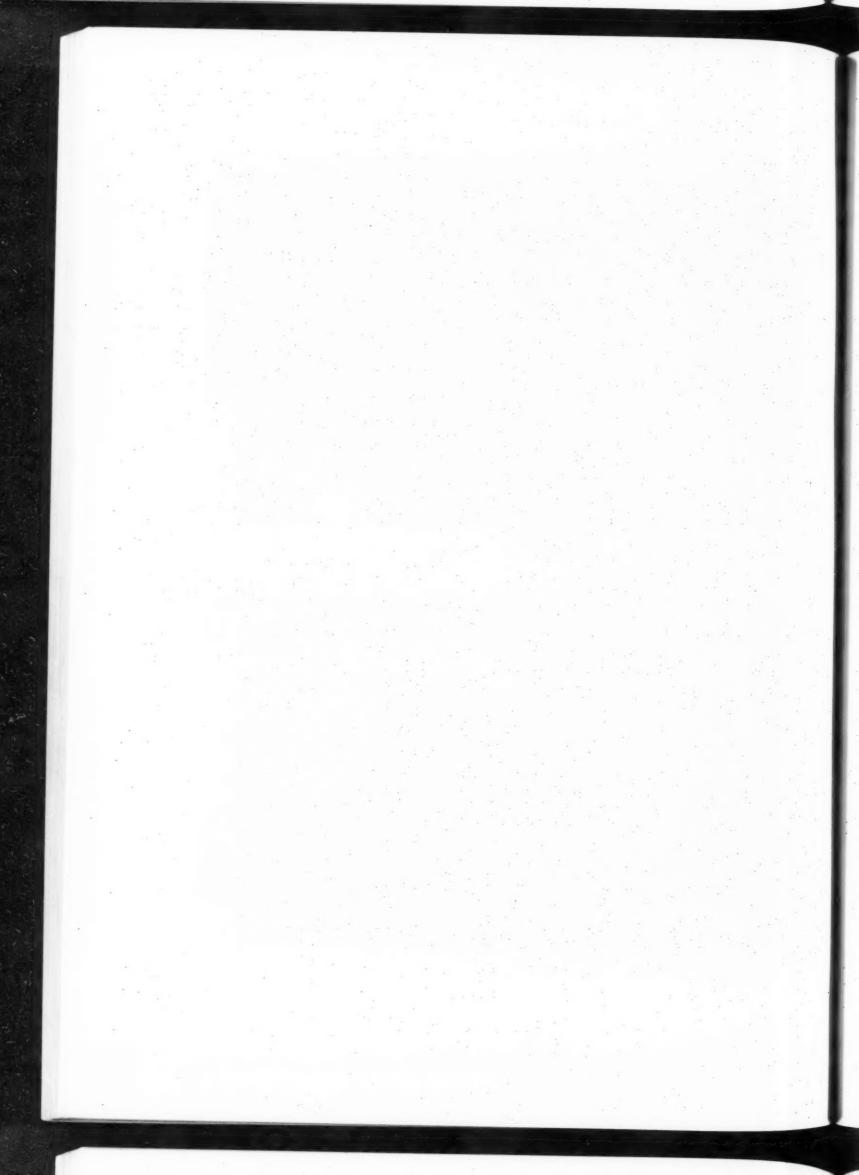
SANTA BARBARA BILTMORE HOTEL REGINALD D. JOHNSON, ARCHITECT

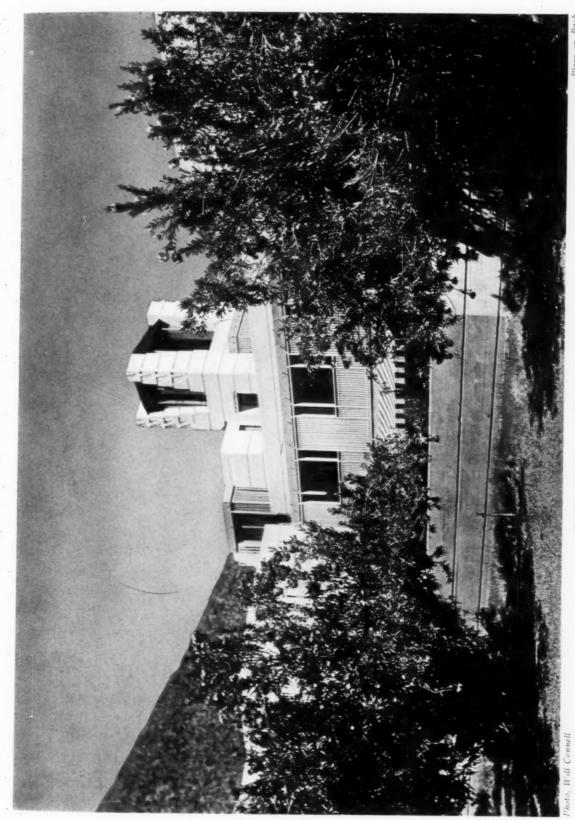


LOBBY



MAIN ENTRANCE SANTA BARBARA BILTMORE HOTEL REGINALD D. JOHNSON, ARCHITECT





OASIS HOTEL, PALM SPRINGS, CAL. LLOYD WRIGHT, ARCHITECT

Year of Completion: 1924. Additions, 1925.

Type of Construction: Reinforced concrete, dry tamped in slip forms invented by the architect for the purpose. Dining room and grills dressed redwood, interior and exterior.

Roofs: Cement slab terraces,

Interior Materials: Cast concrete face as left by forms; decorative joint lines inside and out.

Floors: Concrete.

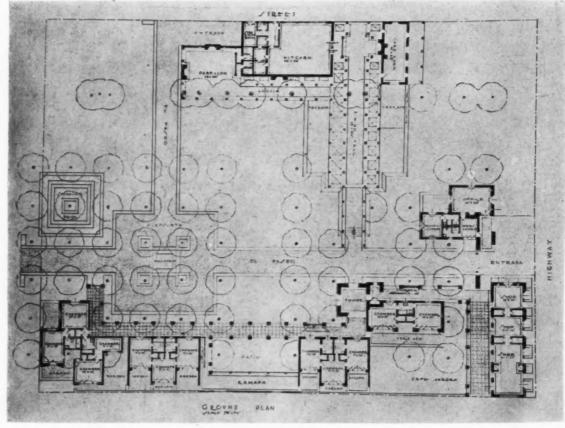
Windows: Pine, all combination screen and glass; French doors.

Lighting: Electric bracket iron fixtures.

Heating: Electric wall heaters.

Ventilation: Natural cross ventilation; all outside rooms open on two or more sides.

Number of Guest Rooms: 22; with additions, total 50 Number of Baths: 14; with additions, total 35. Cubic Foot Cost: First unit as illustrated, 42 cents. Total Cost: First unit as illustrated, \$65,000.



FIRST FLOOR

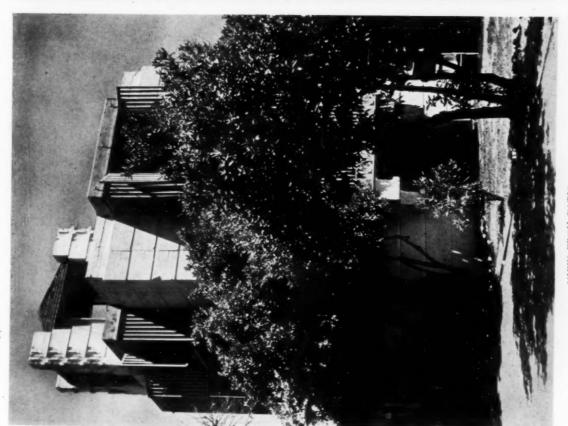
PLAN. OASIS HOTEL, PALM SPRINGS, CAL. LLOYD WRIGHT, ARCHITECT

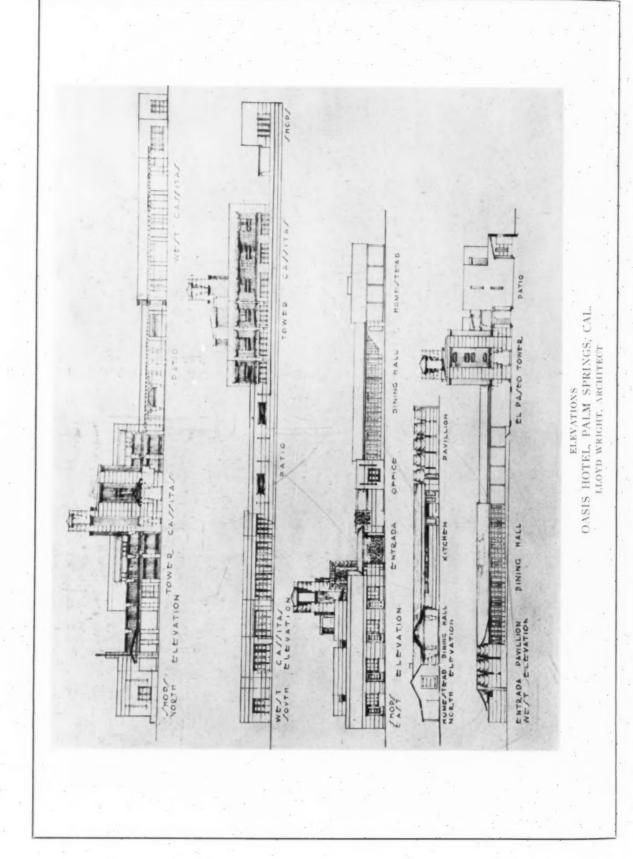










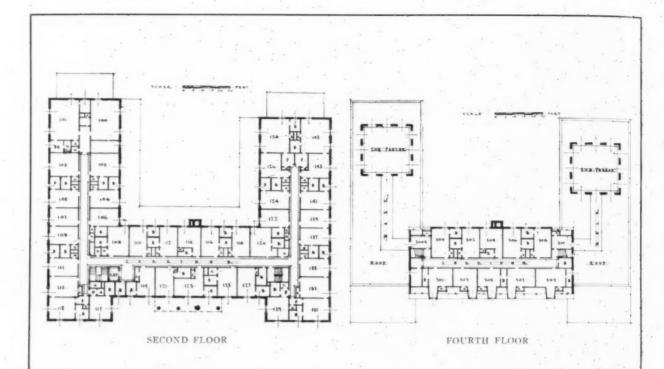


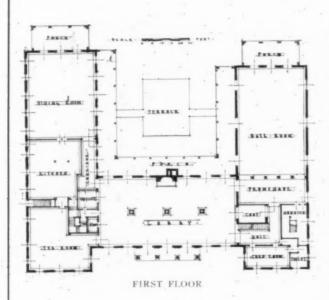


GENERAL VIEW



MOLLY PITCHER HOTEL, RED BANK, N. J. NATHAN HARRIS AND HARRIS & SOHN, ARCHITECTS





Year of completion: 1929.

Type of construction: Fireproof.

Exterior materials: Brick, limestone.

Interior materials: Knotty pine, palm finish

plaster, ornamental plaster.

Floors: Oak.

Windows: Double-hung.

Lighting: Electric.

Heating: Vacuum system.

Ventilating: Automatic.

Number of guest rooms: 96.

Number of baths: 80.

Capacity of dining room: 235.

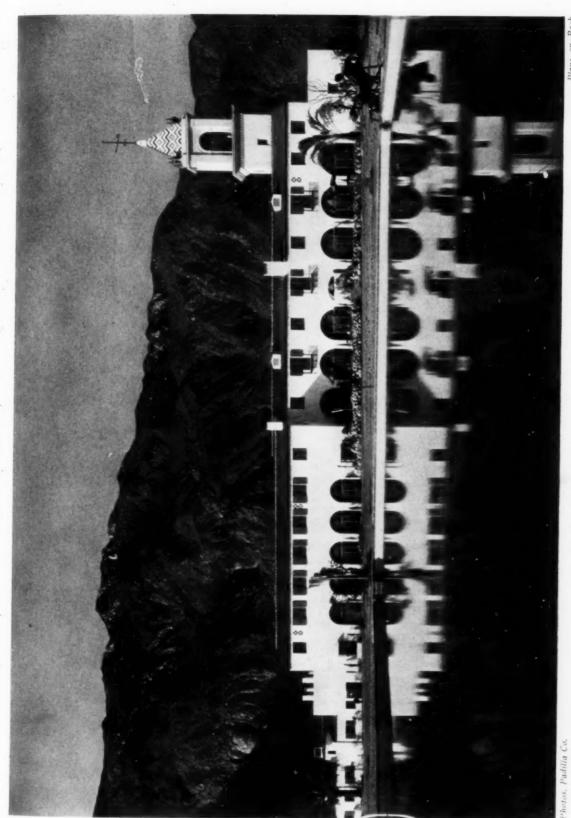
Capacity of ball room: 350.

Number of cubic feet: 490,000,

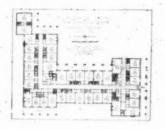
Cubic foot cost: 70 cents.

Total cost: \$425,000.

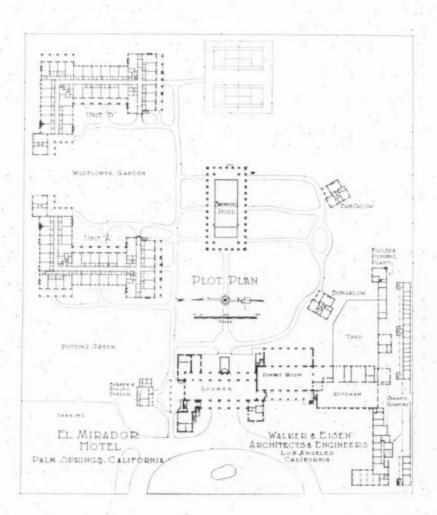
PLANS, MOLLY PITCHER HOTEL, RED BANK, N. J. NATHAN HARRIS AND HARRIS & SOHN, ARCHITECTS



EL MIRADOR HOTEL, PALM SPRINGS, CAL.
WALKER & EISEN, ARCHITECTS







PLANS, EL MIRADOR HOTEL, PALM SPRINGS, CAL. WALKER & EISEN, ARCHITECTS



EL MIRADOR HOTEL, PALM SPRINGS, CAL. WALKER & EISEN, ARCHITECTS

Year of completion: 1927.

Type of construction: Class C.

Exterior materials: Stucco.

Interior materials: Wood studs, composition lath and

plaster.

Floors: Wood.

Windows: Wood.

Lighting: Electric.

Heating: Steam.

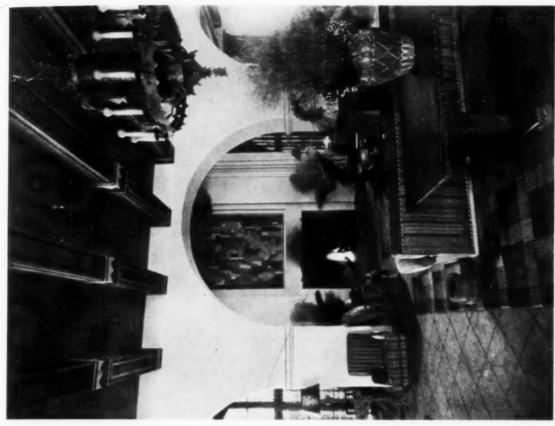
Number of guest rooms: 165.

Number of baths, 165.

Cubic foot cost: 52 cents.

Total cost: \$600,000.

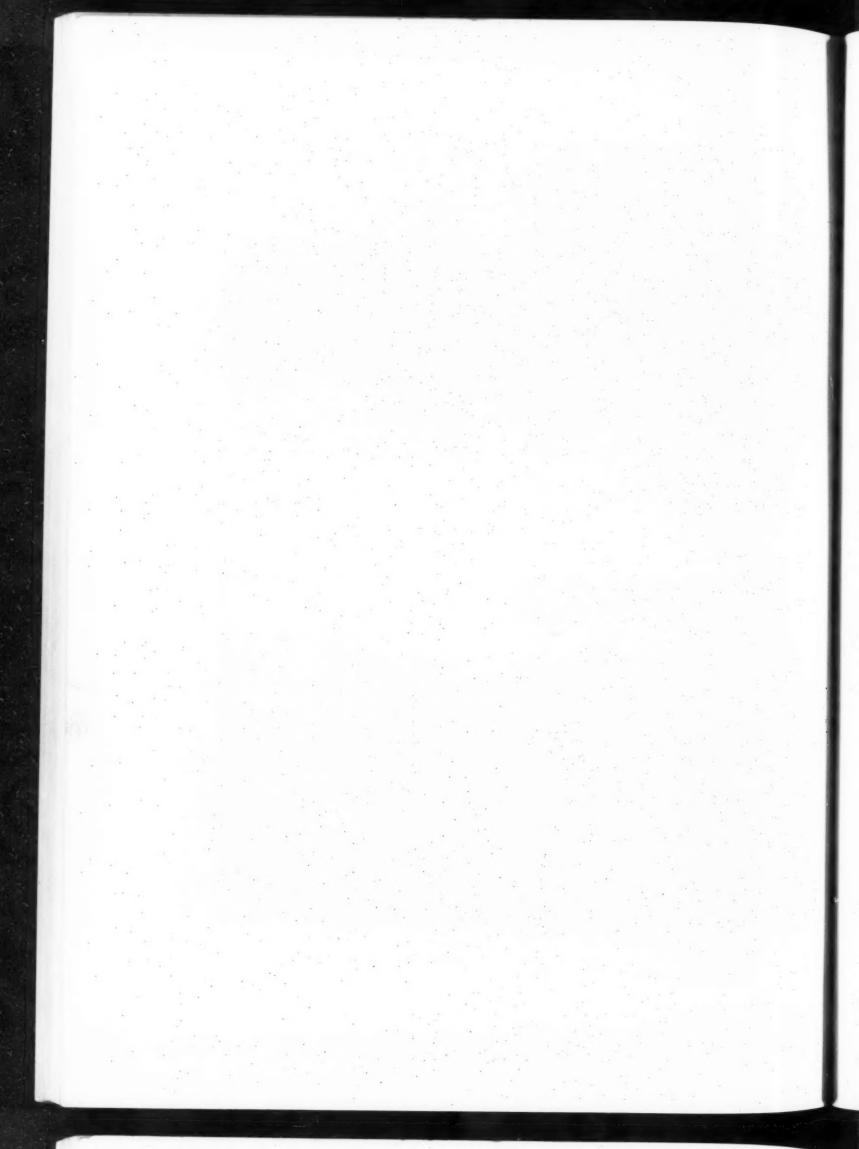
EL MIRADOR HOTEL, PALM SPRINGS, CAL.
WALKER & EISEN, ARCHITECTS

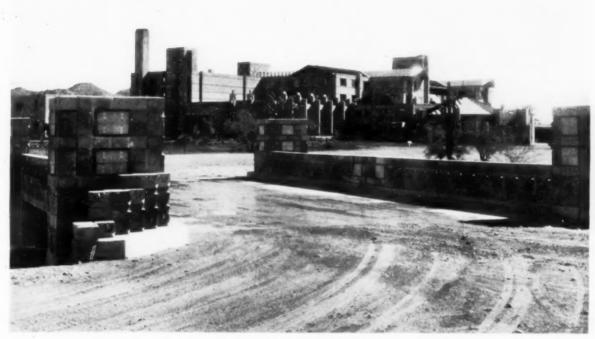


FIREPLACE IN LOUNGE



EL MIRADOR HOTEL, PALM SPRINGS, CAL. WALKER & EISEN, ARCHITECTS SIDE OF LOUNGE

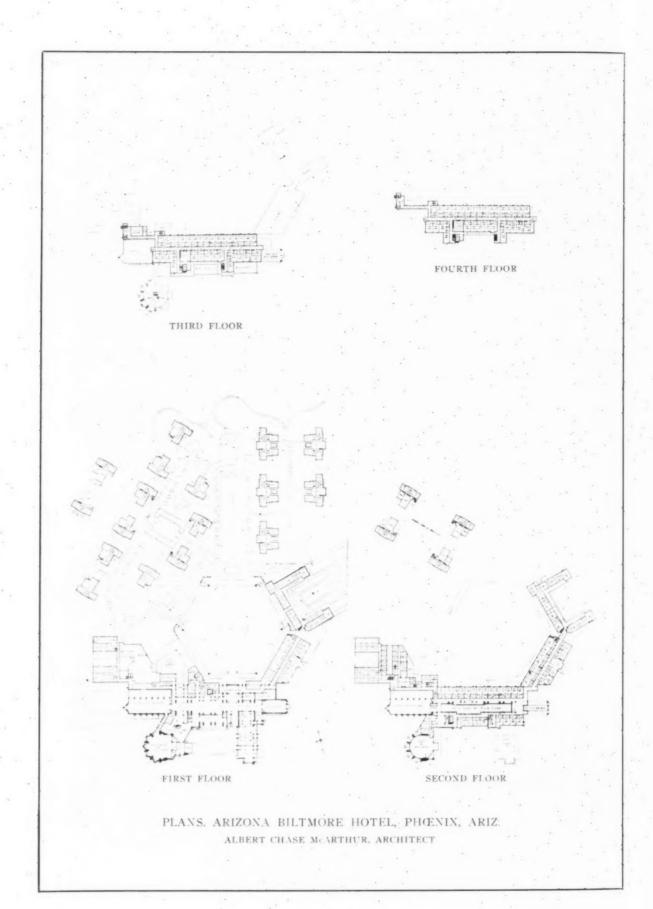




ENTRANCE TO HOTEL GROUNDS

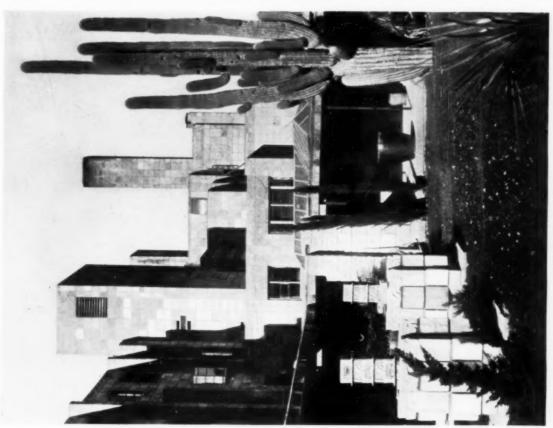


GENERAL VIEW ARIZONA BILTMORE HOTEL, PHŒNIX, ARIZ. ALBERT CHASE MCARTHUR, ARCHITECT





ARDEN ENTRANCE



VIEW FROM PATIO ADIZONA DILTMODE HOTE

ARIZONA BILTMORE HOTEL, PHŒNIN, ARIZ. ALBERT CHASE MGARTHUR, ARCHITECT

#### CONSTRUCTION DATA

Exterior materials: Textile Block Slab construction, invented and patented by Frank Lloyd Wright:

Interior materials: Block slabs; ceilings, plastered; guest rooms, plaster walls, ceilings finished with wax, mahogany woodwork; American walnut in public spaces.

Floors: Concrete slabs, maple dance floors in ballroom and dining room.

Lighting: By means of glass blocks with reflectors behind them set flush with concrete blocks in sheet copper frames.

Heating: High pressure boilers with steam radiators and most direct radiation.

Ventilating: Mechanically by suction.

Number of guest rooms: 202, 73 of which are in 15 cottages.

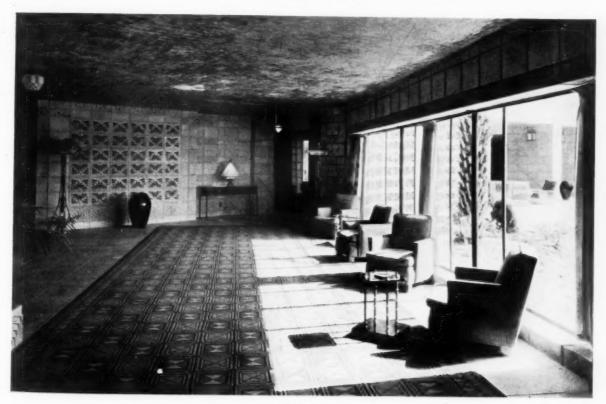
Number of bathrooms: 202. Capacity of dining rooms: 550.

Capacity of ball room: Approx. 400.

ARIZONA BILTMORE HOTEL, PHŒNIX, ARIZ. ALBERT CHASE MCARTHUR, ARCHITECT



MEN'S SMOKING ROOM



LOBBY ARIZONA BILTMORE HOTEL, PHŒNIN, ARIZ. ALBERT CHASE MCARTHUR, ARCHITECT





GENERAL VIEW



Photos. Paul J. Weber

MAIN ENTRANCE

Plans on Back

HOTEL HAWTHORNE, SALEM, MASS, SMITH & WALKER AND H. L. STEVENS & CO., ASSOCIATED, ARCHITECTS



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

PLANS. HOTEL HAWTHORNE, SALEM, MASS.
SMITH & WALKER AND H. L. STEVENS & CO., ASSOCIATED, ARCHITECTS



DINING ROOM



CLUBROOM OF THE SALEM MARINE SOCIETY HOTEL HAWTHORNE, SALEM, MASS. SMITH & WALKER AND H. L. STEVENS & CO., ASSOCIATED, ARCHITECTS

## CONSTRUCTION DATA

Type of construction: First class, brick, concrete and cast stone.

Exterior materials: Brick and cast stone.
Interior materials: Plaster and painted wood.
Floors: Terrazzo and concrete floors carpeted.
Windows: Wood, small light, colonial double-hung.
Lighting: Direct electric special and stock fixtures,

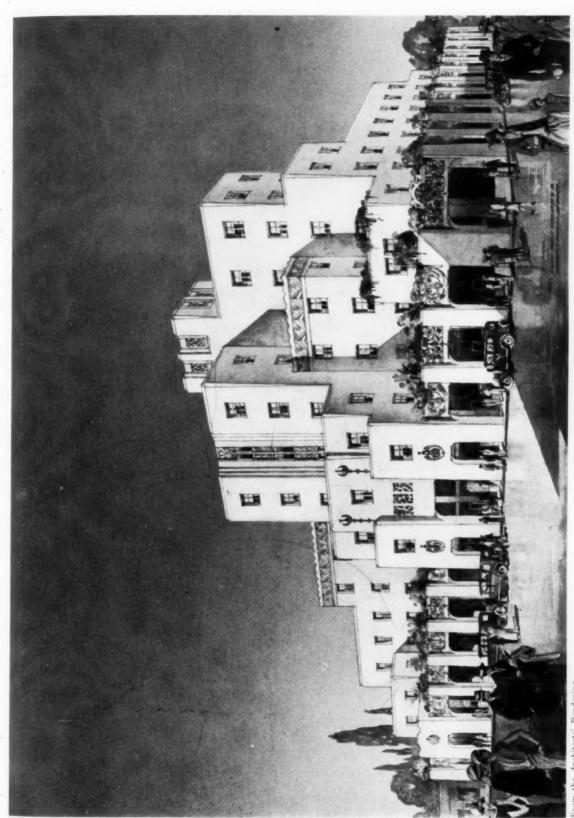
Heating: Steam.

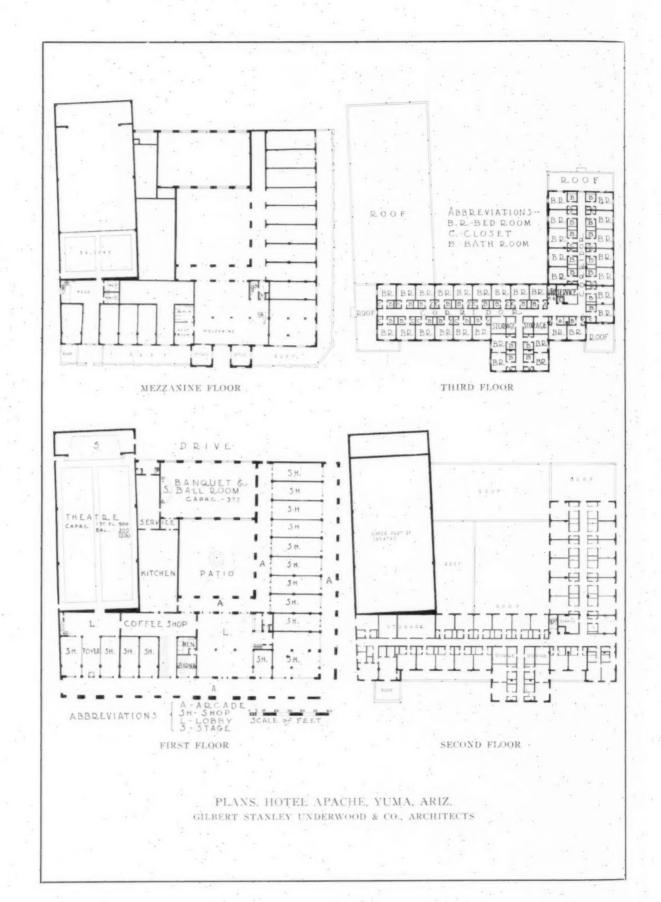
Ventilation: Gravity system. Number of guest rooms: 146.

Number of baths: 100.

Capacity of dining rooms: 350. Capacity of ball room: 300.

HOTEL HAWTHORNE, SALEM, MASS.
SMITH & WALKER AND H. L. STEVENS & CO., ASSOCIATED, ARCHITECTS





# EFFICIENT PLANNING FOR ECONOMICAL OPERATION

J. OTIS POST

OF GEORGE B. POST & SONS, ARCHITECTS

URING the past decade hotel men have recognized as never before the necessity of practicing every economy in operation consistent with rendering good and efficient service to their guests. It is only recently they have realized that successful operation is largely dependent upon quick and efficient planning of the hotel to eliminate all waste motion in rendering the required service. This applies to the planning of the structural features of the building itself, as well as to the layout of the service portions of the house. It should always be borne in mind that each salary saved by efficient planning is an aid to economical operation. This is demonstrated by a few figures.

Let us assume that a hotel consultant (operator or architect), qualified by his past accomplishments to render expert advice, makes changes in preliminary plans that will reduce the payroll by only \$200 per month, or \$2400 per year. This amounts to 6 per cent interest on a capital investment of \$40,000 that could not have been amortized or written off and would have been a handicap to the operation of the hotel during its life, unless corrected subsequently by the expenditure of additional capital. The assumption is that the structural layout for the building is economical, and the lavouts of the dining rooms, convention hall and its accessories, committee rooms convertible into private dining rooms, etc., as well as the grill room, are grouped about the main kitchen with serving pantries in as direct contact to it as is permitted by the most efficient development of the property

It is obvious that an architect, who by long practice and experience in hotel design is familiar with the many intricate requirements of hotels, can effect many savings in the building cost of a hotel, which may seem trifling if made in a private residence, but which, when multiplied several hundred times, according to the number of rooms in a hotel, amounts to savings running into thou-

sands of dollars.

Hotel men and bankers commend the architects who produce artistic effects which appeal to the public by clever architectural treatment of simple building materials and artistic use of color rather than by resorting to the use of expensive and choice imported marbles and elaborately carved woodwork. In the selection of the materials, the life and upkeep of the hotel are of primary importance. In the construction cost an additional expenditure of \$40,000 (to use the same figure) may be justified from the maintenance or from the artistic point of view. This capital investment in

the initial cost of the building can and will be amortized and written off, and it is only a temporary handicap to the most economical operation of the house, whereas a plan that requires more help than should be necessary is inefficient and always a serious handicap to the hotel management.

The incorporation of shops in hotels in New York has become an essential since the building of the Roosevelt. In the case of the Roosevelt Hotel it was demonstrated that by making a plan whereby the maximum shop rentals were obtainable, this hotel could be erected on Madison Avenue, 45th and 46th Streets, running through to Vanderbilt Avenue, in spite of the high ground rental. In reality, the income derived from the shops exceeded the estimated rental, which was sufficient to make the hotel on this site a good business venture. Since then shops have replaced the dining rooms on Madison Avenue in the Biltmore, and before that on Broadway in the Astor, as well as in many other hotels where rental values of stores have justified extensive and costly

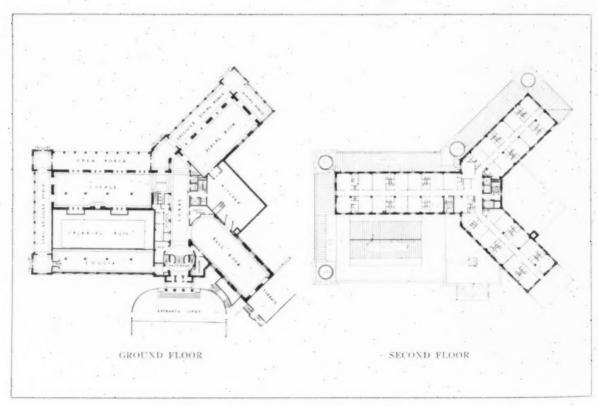
As in the case of the Roosevelt, by a careful study of the approach to the lobby by interrupted runs of stairs, guests will walk up to 25 steps before reaching the dining rooms, without realizing that they have done so and without considering it a hardship. Of course, elevator service from the ground floor should be provided for invalids, and for those objecting to the stairs, but the latter are few in number. The public has accepted the elevated lobby without comment,

There is no need at this time to further explain the "Statler Idea," which was the subject of a series of articles contributed to THE ARCHITEC-TURAL FORUM by my firm (published in November and December, 1917, and in January and February, 1928), and supplemented by articles entitled "The Hotel Plan," and "Modern Hotel Construction" with "Engineering Details" appearing in the Hotel Reference Number of November, 1923. In these articles we pointed out the difference between the older hotels and the new type of high class transient hotel being developed. illustrated by the Hotels Statler in Cleveland, Detroit and St. Louis.

Prior to 1910 the requirements for a hotel were almost as individual as those of a private residence. The designs were made often for laymen owners of property who wished to build hotels thereon; when built, managers were employed to operate them. Some operated profitably, and many were unable to do so. Even hotel men,



GENERAL VIEW



CAVALIER HOTEL, VIRGINIA BEACH, VA.
NEFF & THOMPSON, ARCHITECTS
GEORGE B. POST & SONS, CONSULTANTS



REAR ELEVATION

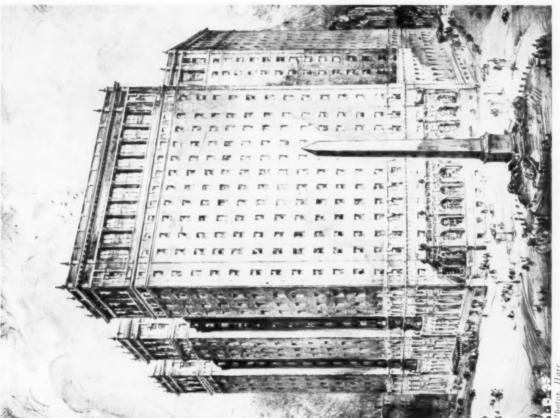


Photos. Tidewater Photo. Service

CAPTAIN JOHN SMITH GRILL
CAVALIER HOTEL, VIRGINIA BEACH, VA.
NEFF & THOMPSON, ARCHITECTS
GEORGE B. POST & SONS, CONSULTANTS

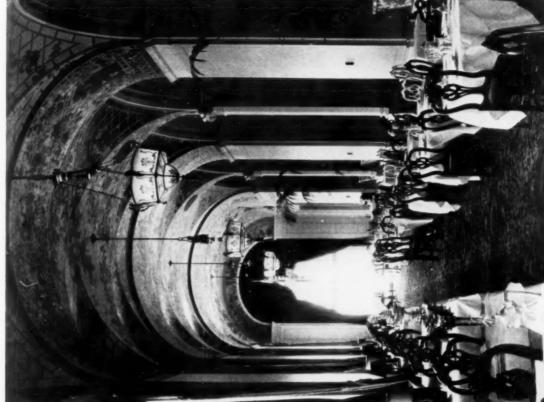


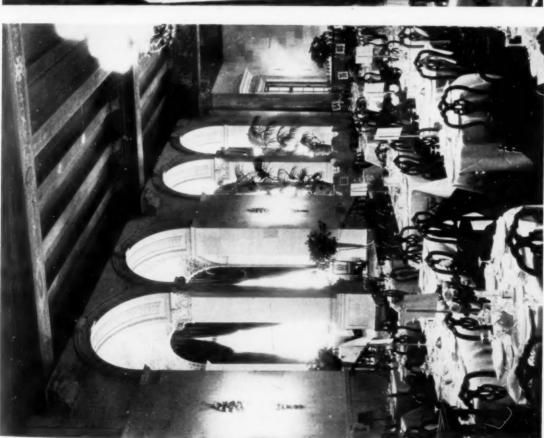
VIEW OF COMPLETED BUILDING



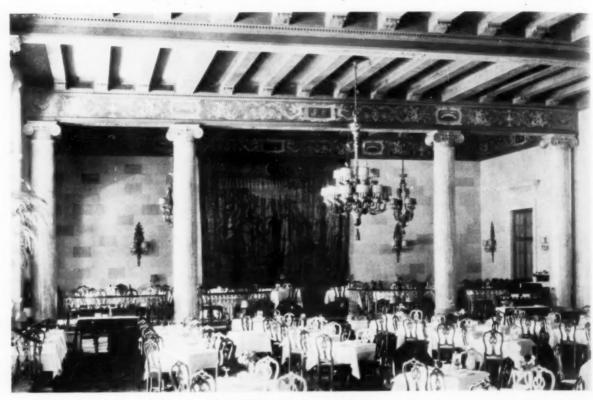
PERSPECTIVE SKETCH BY C. A. HARST

T HOTEL STATLER, BUFFALO GEORGE B. POST & SONS, ARCHITECTS .





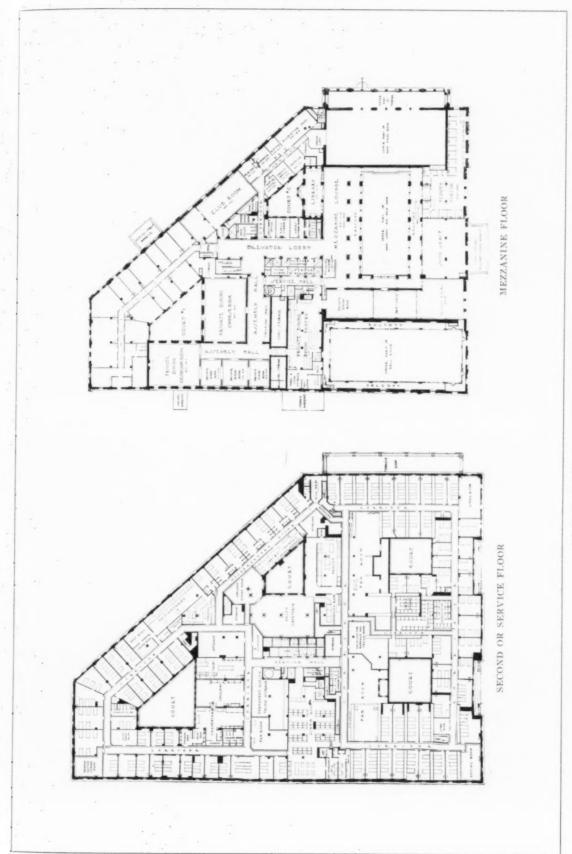
TWO VIEWS OF THE MAIN DINING ROOM HOTEL STATLER, BUFFALO GEORGE B. POST & SONS, ARCHITECTS



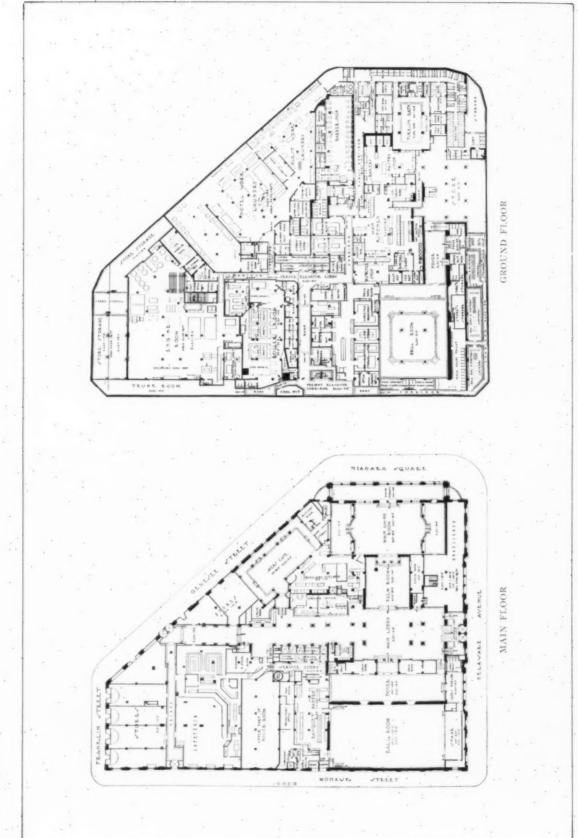
END OF MAIN DINING ROOM



ENTRANCE TO BALL ROOM FOYER
HOTEL STATLER, BUFFALO
GEORGE B. POST & SONS, ARCHITECTS



PLANS. HOTEL STATLER, BUFFALO GEORGE B. POST & SONS, ARCHITECTS



PLANS. HOTEL STATLER, BUFFALO GEORGE B. POST & SONS, ARCHITECTS



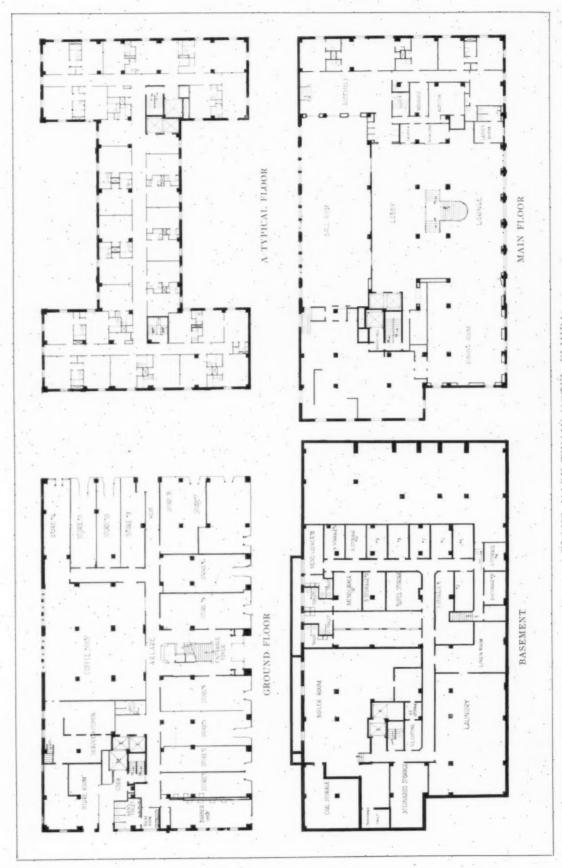
Photo. Wurts Bros.

PERSPECTIVE SKETCH OF PROPOSED DESIGN



Photo. Fred T. Loomis

GENERAL VIEW OF COMPLETED BUILDING MARK TWAIN HOTEL, ELMIRA GEORGE B. POST & SONS, ARCHITECTS
L. E. CONSIDINE, ASSOCIATED



PLANS. MARK TWAIN HOTEL, ELMIRA-GEORGE B. POST & SONS, ARCHITECTS 4. E. CONSIDINE, ASSOCIATED



Photo. Wurts Bros

HOTEL ROOSEVELT, NEW YORK GEORGE B. POST & SONS, ARCHITECTS

when building to operate, were lavish in the sizes of rooms, extravagant in the use of costly materials, often handicapped by too few bathrooms, and inconvenienced by poor planning. Then the hotel requirements, as well as their operation by large hotel companies, became standardized, and as a logical result the financial world recognized the hotel and its operation as an organized industry. No longer do bankers consider the financing of a hotel a dangerous experiment, nor are the personality of the operator, his individual knowledge, personal experience and integrity the governing considerations in making a loan. While all these factors enter into the equation, there are now many other tangible factors which they can estimate, governing it, the law of supply and demand, the costs of operation and established earnings under normal conditions, etc. In short, hotel operation became a recognized business. Instruction in hotel management is now a part of the curriculum of business schools in some of our universities.

Since the publication of "The Statler Idea" 12

years ago, the so-called Statler bathroom with its running ice water, and the many other innovations of that time, have become as it were standard reatures in hotel planning of today, and create little or no comment. Mr. Statler's slogan of "Efficiency in Planning for Economy in Operation" is still full of significance, and is further illustrated in the subsequent links in the Statler chain built in Buffalo and Boston. In each building greater refinements in the use of building materials were practiced to keep down the constantly increasing cost of building construction.

It is but fitting that I should at this time pay tribute to the great master builder of hotels with whom we had the good fortune to have coöperated for 18 years in the study of the modern hotel's problems, and in all that might add to the comfort and convenience of his guests, as well as in the standardization of that which might lead to greater efficiency in hotel operation. He mastered the many technical details in connection with the actual building needs. He understood heating, lighting and ventilation as few laymen did; and

BARRER SHOP

Mezzanine Floor

whereas he, at first, demanded a "classy" architectural design, in later years he could discuss the aesthetics of architectural composition and decoration with true insight and understanding. By E. M. Statler's untimely death, the world lost a leader in progressive thought and action,—a great hotel man and a great business man, one active in mind and body, of keenest insight and comprehension of the coöperation of his associates, coupled with an infallible memory and a sense of honor that was never questioned. His host of friends and admirers will carry on the develop-

STORE

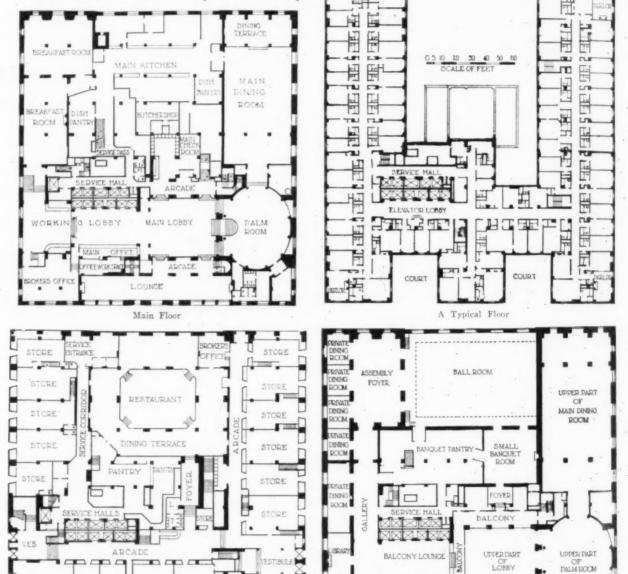
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Ground Floor

STORE

ment of the so-called "Statler Idea," so closely identified with the American hotels of today, already introduced abroad in the construction of modern hotels of Europe and Great Britain.

Editor's Note. For the past 25 years no firm of architects in this country has contributed more to the development of hatel architecture than the firm of George B. Post & Sons. It is our pleasure and privilege to present in these pages illustrations and plans of several of their recently completed hotels. In this interesting group the Hotel Roosevelt has been included, although plans and a rendered drawing of it were shown in our first Hotel Rejerence Number published in November, 1923, since which date the hotel has been completed and opened.



Plans. Hotel Roosevelt, New York George B. Post & Sons, Architects







HOTEL ROOSEVELT, NEW YORK GEORGE B. POST & SONS. ARCHITECTS



WEST SIDE OF LOBBY



SOUTH SIDE OF LOBBY
HOTEL ROOSEVELT, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS



Photo. Wurts Bros.

ARCHITECTS' PERSPECTIVE SKETCH



VIEW OF COMPLETED BUILDING OLYMPIC HOTEL, SEATTLE GEORGE B. POST & SONS, ARCHITECTS

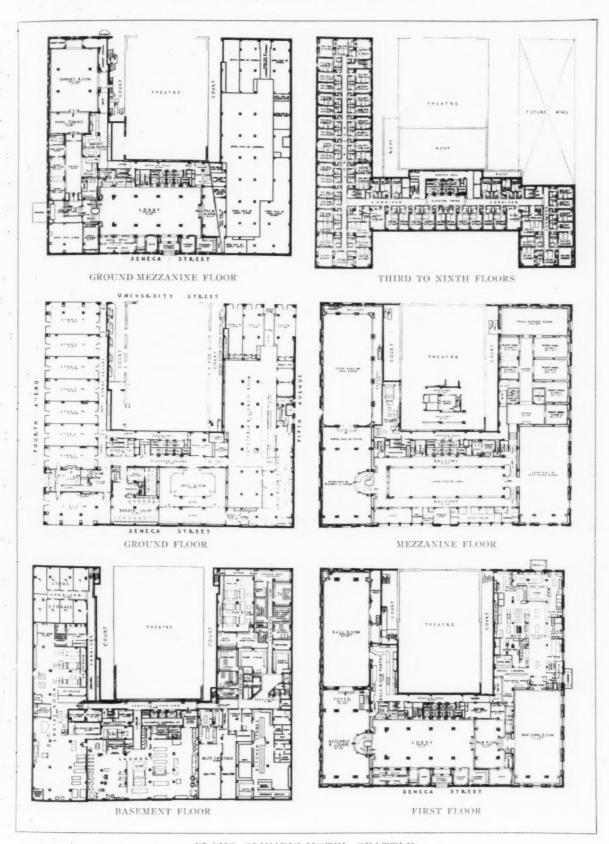


PALM ROOM



Photos, Walter P. Mille

GEORGIAN DINING ROOM
OLYMPIC HOTEL, SEATTLE
GEORGE B. POST & SONS, ARCHITECTS



PLANS, OLYMPIC HOTEL, SEATTLE GEORGE B. POST & SONS, ARCHITECTS



VIEW OF THE COMPLETED BUILDING



Photo. John Adams Davis

FROM THE ARCHITECTS' PERSPECTIVE SKETCH
HOTEL STATLER, BOSTON
GEORGE B. POST & SONS, ARCHITECTS

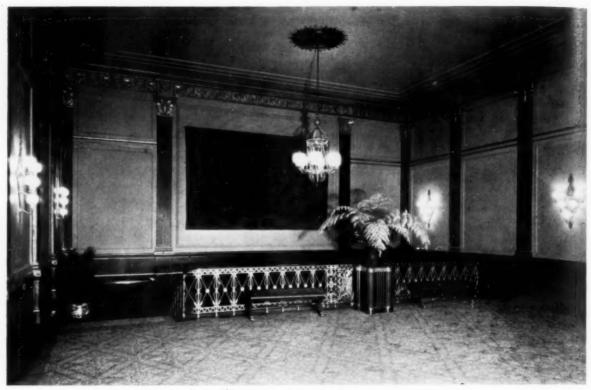


LOBBY



Photos. John Adams Davis

MAIN DINING ROOM
HOTEL STATLER, BOSTON.
GEORGE B. POST & SONS, ARCHITECTS

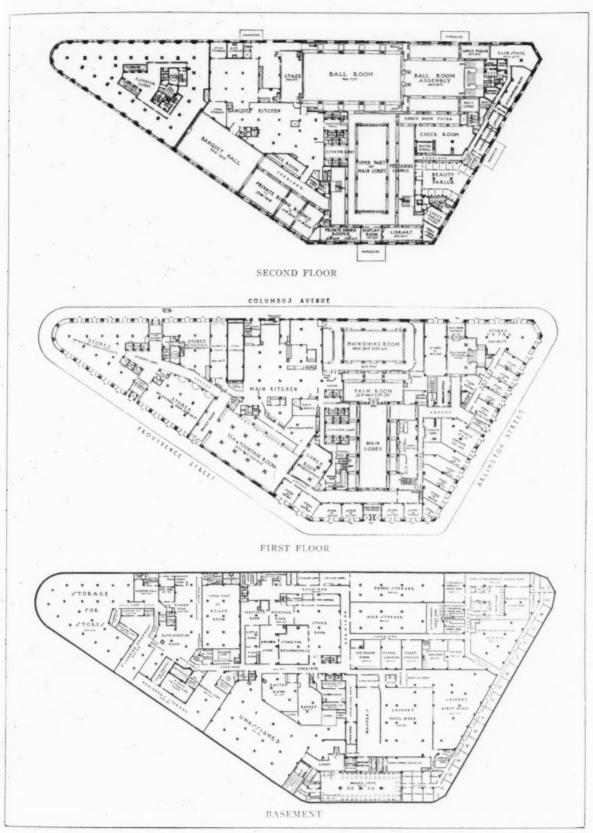


√ BALL ROOM ASSEMBLY

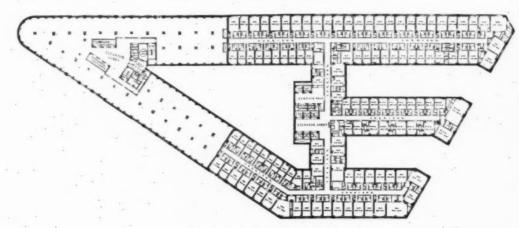


Photos, John Adams Davis

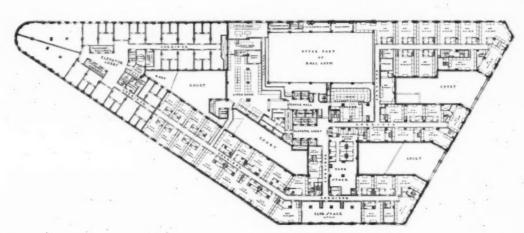
PALM ROOM
HOTEL STATLER, BOSTON
GEORGE B. POST & SONS, ARCHITECTS



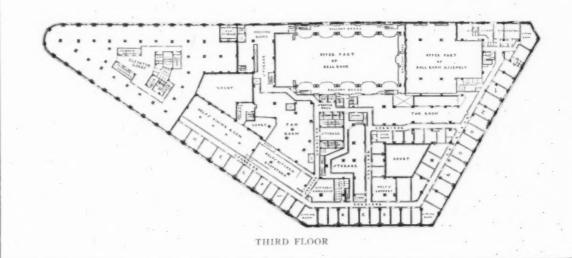
PLANS. HOTEL STATLER, BOSTON GEORGE B. POST & SONS, ARCHITECTS



SIXTH TO ELEVENTH FLOORS

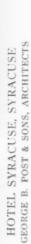


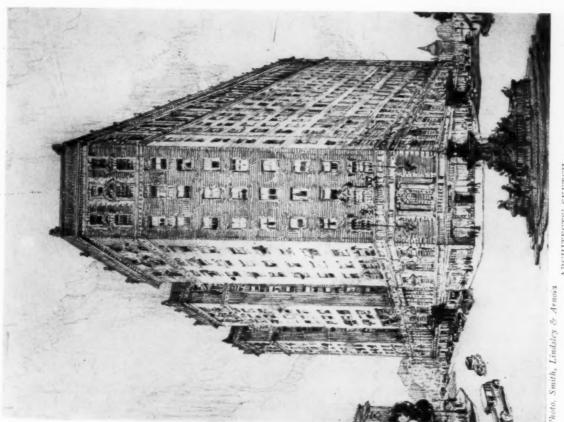
FOURTH FLOOR



PLANS. HOTEL STATLER, BOSTON GEORGE B. POST & SONS, ARCHITECTS









MAIN FACADE



ELEVATOR LOBBY



LOBBY LOUNGE

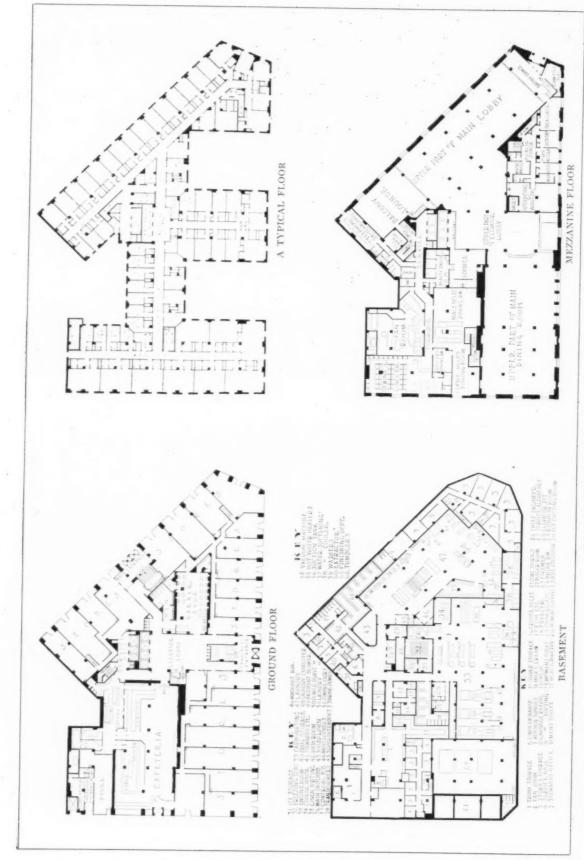
HOTEL SYRACUSE, SYRACUSE GEORGE B. POST & SONS, ARCHITECTS



OFFICE AND LOUNGE



LOBBY LOUNGE
HOTEL SYRACUSE, SYRACUSE
GEORGE B. POST & SONS, ARCHITECTS



PLANS, HOTEL SYRACUSE, SYRACUSE GEORGE B. POST & SONS, ARCHITECTS.

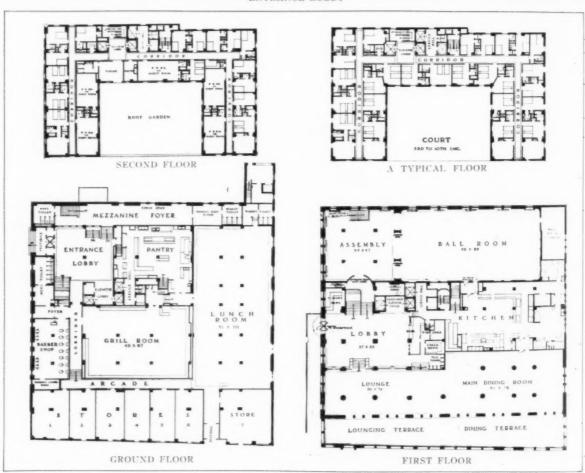


Photo. Wurts Bros.

FROM THE PERSPECTIVE SKETCH HALF MOON HOTEL, CONEY ISLAND GEORGE B. POST & SONS, ARCHITECTS



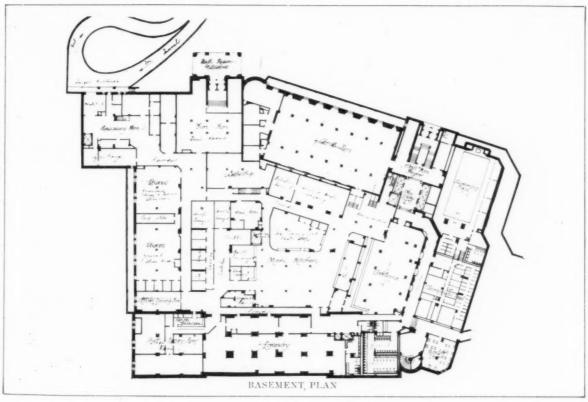
ENTRANCE LOBBY



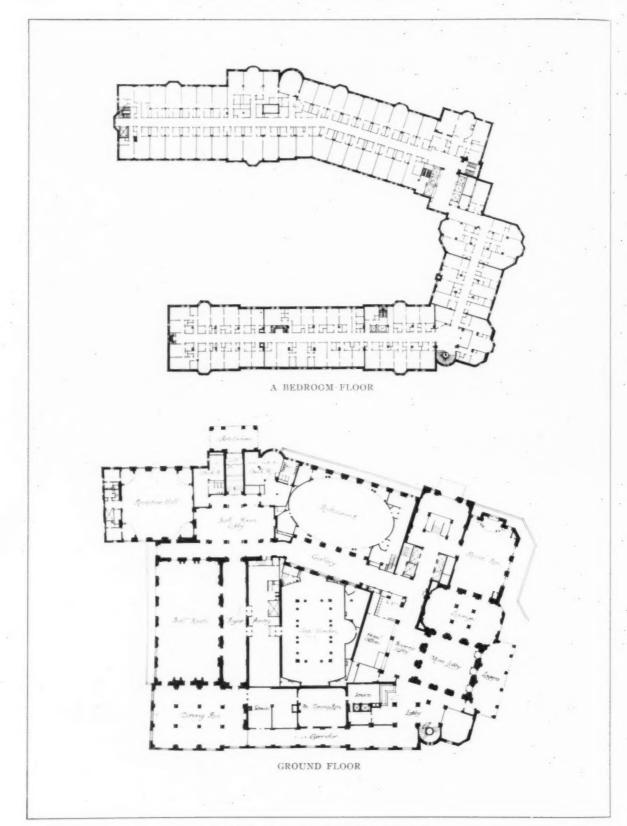
HALF MOON HOTEL, CONEY ISLAND GEORGE B. POST & SONS, ARCHITECTS



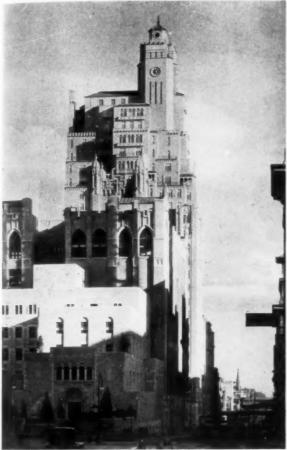
FROM THE ARCHITECT'S SKETCH



CHATEAU LAURIER, OTTAWA JOHN S. ARCHIBALD, ARCHITECT JOHN SCHOFIELD, ASSOCIATED



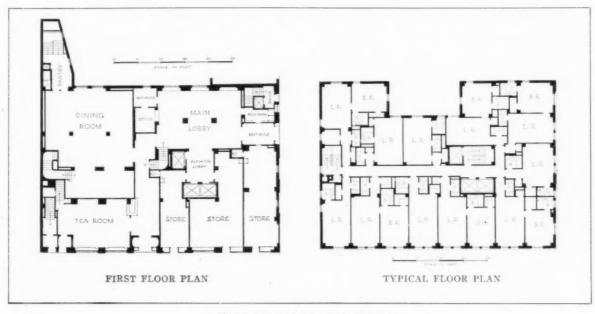
PLANS. CHATEAU LAURIER, OTTAWA JOHN S, ARCHIBALD, ARCHITECT JOHN SCHOFIELD, ASSOCIATED



Photos. Nyholm VIEW FROM PARK AVENUE



VIEW FROM LEXINGTON AVENUE



HOTEL BEVERLY, NEW YORK EMERY ROTH, ARCHITECT SYLVAN BIEN, ASSOCIATED



DINING ROOM



ELEVATOR LOBBY
HOTEL BEVERLY, NEW YORK
EMERY ROTH, ARCHITECT
SYLVAN BIEN, ASSOCIATED



Photo. Wurts Bros.

HOTEL DELMONICO, NEW YORK GOLDNER & GOLDNER, ARCHITECTS



ENTRANCE FOYER



Photos. Amemya

MAIN DINING ROOM
HOTEL DELMONICO, NEW YORK
GOLDNER & GOLDNER, ARCHITECTS



V BALL ROOM



RECEPTION ROOM HOTEL DELMONICO, NEW YORK GOLDNER & GOLDNER, ARCHITECTS

## HOTEL DECORATIONS AND FURNISHINGS

BY

HENRY J. B. HOSKINS

OF THE FIRM OF HOLABIRD & ROOT

An understanding of the decorative requirements and the furnishings of the modern hotel cannot well be arrived at without delving into the past to some extent. In the pursuit of this pleasant pastime one cannot help but be impressed with the similarity of service rendered, though in many and varied manners, by those who have endeavored to make the life of the traveling public more pleasant, or to give zest to those upon whose hands, for various reasons, time has hung heavily.

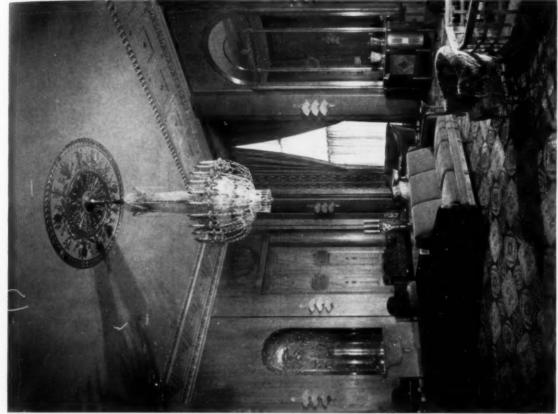
The metamorphosis of the hotel has been slow but sure. Standing as it does on traveled highways, it has felt the transforming effect of all the varied modes of transportation, from the sedan chair and stage coach to the bicycle, train and automobile. The ease and growth of means of transportation, the vast increase of population, and the migratory nature of a large portion of it created a need for an enormous amount of hotel accommodation. The location of railroad depots, the concentration of commercial centers, etc., brought about a need for the concentration of hotel space, and in place of the scattered small hotels, each with its gaily swinging sign, there resulted the mammoth structures of today.

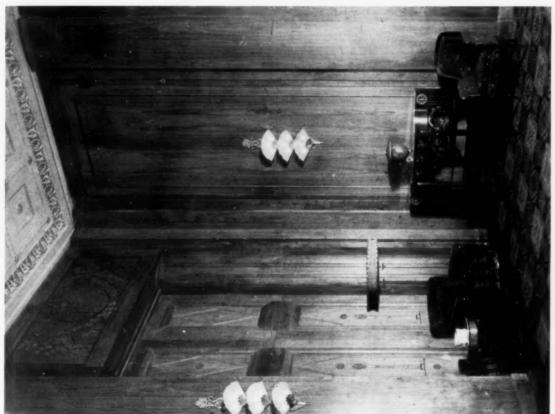
Their requirements are many, and vary from



Photos, Henry Fuermann & Sons

Ball Room Foyer
Hotel Schroeder, Milwaukee
Holabira & Root, Architects





DETAILS OF THE MAIN LOUNGE HOTEL SCHROEDER, MILWAUKEE Holabird & Root, Architects

the need of affording a few hours' or days' rest to the traveling transient to providing winter quarters for the fortunate few, or homes for permanent guests. At all times and in all its varied forms, whether ale house inn, tavern or hotel, the paramount purpose of the hotel was comfort,—comfort and rest for the wearied traveler, and in these days comfort and leisure, an escape from business worries in an environment of restful ease, or the provision of all the comforts of a home with none of the care and trouble that go with it.

These different forms of hotel life and accommodation present peculiar problems of decorating and furnishing. In the early days, previous to the development of the industrial era, there seems to have been but little difficulty. The buildings were designed as units inside and out and were fitted up, decorated and furnished in the prevailing mode or style of the times, and with the relatively

slow growth or change in decorative ideas they became a true expression of the needs of their day, and were practically and artistically satisfactory. Those were the happy days when contemporary life was expressed in architecture and other arts in a homogeneous manner, with each style or period developing slowly from that preceding in its conformity to the requirements of the day and to ideas resulting from foreign travel.

With the growth of industry, the development of a mechanical age, and the advancement of commerce, artistic progress and endeavor seemed to suffer a corresponding decline, reaching a point where the continuity of growth practically ceased and the principal function of the designer in the field of furniture and decoration became that of an adapter of pre-conceived styles to the purposes of later days. Classic, Elizabethan, Jacobean, Georgian, Spanish, Italian and the whole gamut



Detail of Ball Room Hotel Schroeder, Milwaukee Holabird & Root, Architects

ad

were reproduced or adapted ad lib., and they still are. While buggies became motor cars, sail boats steamships, balloons dirigibles, and kites airplanes, our decoration and furniture remained practically unchanged. Our interiors presented, and often still do present, an environment as unfitted to the fashions in dress of the day, as would be an armor-clad pilot in an airplane. With period styles forming the architectural alphabet, and mass production of period furniture and decorative material the vogue, an escape from this predicament seemed well nigh impossible. But the seeds of revolt against the old manner of doing things, against the persistent copying of old ideas, became apparent, and the l'art noveau movement, beginning about 1890-1900, grew into a movement which, for want of a better expression, is now called "Modern" or "Contemporary."

In its reversion to first principles, its desire to

throw overboard the prevalent manner of doing things, the first effects were simple and crude, and with ragtime and jazz in music, cubistic creations in painting, free verse in poetry and the like, efforts in this direction were met with the ridicule that comes from lack of understanding and fear and dislike of what is not comprehended. With a growing understanding for the necessity of the correlation of all of the arts and endeavors that form the expression of the life of today, the idea of the "modern" movement, in decorations and furnishing becomes more clear. It is becoming realized that the structure and construction materials form the basis from which design is developed and that interior decoration is merely architectural development and completion.

The hotel makes its particular appeal through service and the provision of comfortable luxury for the leisure hours of life in compensation for



Office and Lobby Hotel Schroeder, Milwaukee Holabird & Root, Architects

the strain and complexity of our work-a-day lives. As people generally sought in the hotel something which their own homes lacked, it was rather natural that they should be impressed with the lavishly carved and embellished designs of the period styles, with the growing accumulation of objects of art, and an extravagance of decorative effect suggestive of commercial prosperity and advancement. But with the development of a more democratic taste the desire for regal expenditure and lavishness has diminished to a large extent in favor of simplicity and refinement.

The atmosphere of the period styles has given way to a studied attempt to express ourselves in our own way and to create a suitable setting for the life of our own time. The "modern" trend in design is toward simple severity, with the use of flat planes, light and shadow, of clean-cut angles and flutings and sharp color contrasts arranged with the same rhythm as modern dancing and music, and with the same simplicty and directness as the sweeping lines of our automobiles and airplanes. Careful selection, discrimination, and the elimination of non-essentials form the basis of modern decoration. Furniture is slowly conforming to the same idea and is being designed in harmony with the decorative scheme with strong lines, flat surfaces and a tendency toward affording ease as well as giving architectural effect.

As the design of furniture has always been governed by the prevailing styles in costumes, so our chairs and couches are built low and comfortable in keeping with the cross-kneed ease of modern dress. The invention of synthetic materials and of new methods for the use of old materials offers a wide selection of decorative aids, and these are invariably used in a manner to display their individual characteristics and their innate beauty. For the floors of large public rooms, lobbies, lounges and similar spaces, terrazzo is rapidly becoming the material most used, and it offers an extremely wide range of color and design. Of course, marble floors are still extensively laid, and rubber tile, cork tile and similar products are much used where found desirable. Wood parquet floors set in mastic directly upon the concrete slab are finding favor, while for bedrooms and their corridors, using carpet laid with cushioning above the concrete is common practice.

Walls are broadly handled, and when formality is desired marble may be found in large simple slabs displaying the beauty of the material, or use may be made of wainscoting, installed where the wood is alive with its natural color and beauty unspoiled by heavy staining. The economy and ease of the use of plaster have been followed by



Photos, Trombridge

Private Dining Room Palmer House, Chicago Holabird & Root, Architects

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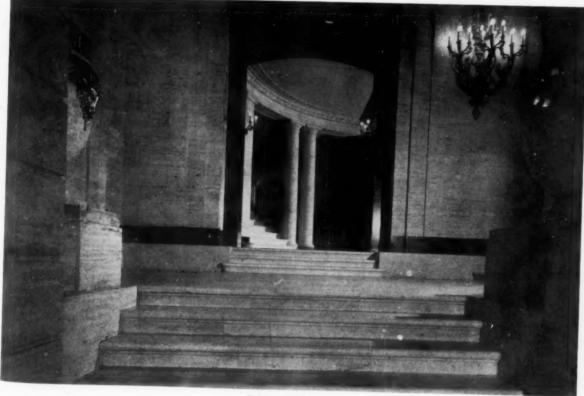
the extensive application of paint with its innumerable opportunities for gradation of tone and bright contrasts of color. For the bedrooms and their corridors, wallpapers offer a wide choice of color and design in the latest mode at a relatively low cost and with the possibility of obtaining variable effects. The supply of fabrics is unlimited as to design, material, weight and color, and in painted rooms the fabrics set the color scheme, since it is much easier for fabrics to be matched with paint than paint with fabrics. Fabrics are hung in long folds and unbroken lines with an entire absence of fussiness, and in a manner calculated to display the interest and charm of the material to the best advantage.

In the conception of decorative schemes, the tendency toward the use of cool colors persists, with shades of green and blue predominating, often lending apparent spaciousness to the areas so treated. With these combinations silver is used to an increasing extent, and nickel metal, with surfaces varying from the dull to a high gloss, lends grace and distinctiveness to grilles, railings and other features, whether used separately or in combination with metal having a black or other contrasting finish. The use of black as a background, particularly in smaller spaces, is becoming favored and affords opportunity for the use

of strong, warm colors. The use of color is spreading throughout all sections of modern hotels and similar structures. White tile, long the sign and symbol of perfect sanitation, is being replaced with colored tile, colored glass, etc., with bath tubs, lavatories and other fixtures to match.

Of paramount importance in the modern decorative scheme is the extreme flexibility in illumination afforded by the universal use of electricity. Perhaps nothing will ever equal the charm and softness of candle light, and its influence for many years in the design of lighting fixtures is very apparent; but in the new scheme of things electricity is a source of illumination used entirely on its own merits and with almost unlimited scope in its application. In direct lighting, glass of extreme beauty and texture, or combinations of metal and glass, are arranged in fascinating forms of infinite variety and charm, and expressive only of light, while for indirect lighting, the flat reflective surfaces of modern decoration offer unending opportunities for obtaining varying effects.

Among modern structures the hotel offers perhaps the greatest field to the architect and decorator for their efforts to escape from the thraldom of the past, and it presents an opportunity for creating surroundings in harmony and sympathy with the varying ideas of a changing world.



Entrance Stairway
Palmer House, Chicago
Holabird & Root, Architects



MAIN DINING ROOM
PALMER HOUSE, CHICAGO
Holabird & Root, Architects



DINING ROOM FOYER SHERRY-NETHERLAND HOTEL, NEW YORK BUCHMAN & KAHN AND SCHULTZE & WEAVER, ARCHITECTS



Photo. Tebbs & Knell, Inc.

BALL ROOM, HOTEL PEABODY, MEMPHIS W. W. AHLSCHLAGER, ARCHITECT



Photo. Amemya

BALL ROOM, MOLLY PITCHER HOTEL, RED BANK, N. J. NATHAN HARRIS AND HARRIS & SOHN, ARCHITECTS

# BOOK DEPARTMENT

# WOOD CONSTRUCTION

A REVIEW BY CLIFFORD WAYNE SPENCER

HE great practical value of a handbook covering all phases of the use of wood in construction will be readily appreciated by all those who are in any way connected with the building industry. The volume on wood construction which is the subject of this review is both complete and up to date in every detail, being a project of the National Committee on Wood Utilization, which was formed in 1925 by Herbert Hoover, its first chairman. The preparation of the work dealing with the utilization of wood for construction purposes was under the control of and sponsored by a sub-committee whose membership included representatives of many organizations,-The National Association of Builders' Exchanges; United Engineers and Constructors, Inc.; The American Society of Civil Engineers; The American Institute of Architects; and the Associated General Contractors of America,—as well as unattached architects, engineers, a director of research in retail lumber, Antioch College, and the editor of the Engineering News-Record. The actual preparation of the work was carried out by Dudley F. Holtman, construction engineer for the National Committee on Wood Utilization, with the coöperation and assistance of the control committee which endorses the work as being "an outstanding, authoritative, and up-to-date work on the efficient use of wood in the building and construction field.'

The construction of wood buildings is a science that has come down through long ages as a matter of craftsmanship. It has developed slowly, and different practices and usages have been passed on from one generation of workers to the next in the form of a trade, so that a great deal of the essential information regarding the use of wood has never been made available in printed form. With the modern era there have come rapid changes in the methods of carrying out all types of building construction, and it is more or less difficult to keep abreast of the times and to be well informed on upto-date methods used in all types of construction, including that of wood. In order to make available to architects, engineers, and builders the unprinted information of the craft as well as the new facts and the methods discovered by modern science, the editor and sponsors have undertaken the preparation of this work. "Fundamental facts concerning the nature and available forms of wood, and fundamental principles in the use of wood, constitute the most important part of this book. The aim has been to furnish basic information for use in designing and specifying wood construction, and to aid in the efficient selection and application of the material, and in the adoption of efficient, economical forms of design.

"The first seven chapters give information on the factors affecting the use of wood in construction; lum-

ber grading, grade provisions, and working stresses; the principal woods used in building and construction; the identification of common woods; preservative treatment; the use of paints and stains, and methods of preventing termite damage. The last four chapters contain information on approved methods of using lumber in light building construction and millwork, and in both heavy timber and temporary construction. In the appendix there are given compilations showing the standard grades produced in the various species, and tables of the lumber grades used for various construction purposes."

The subject of the supply available and the physical structure of wood is treated, starting with the most fundamental and elementary facts and developing into quite a scientific treatise covering such matters as the cellular structure of woods, density, moisture and various defects that are likely to occur in the structure of commercial woods, including knobs, pitch streaks and pitch pockets, pin worm holes, grubworm holes, checks, shakes, compression wood, and cross graining. The effects of these defects on the strength and durability are pointed out and discussed. An interesting passage in the work is that in which the author points out that certain common popular beliefs in regard to the strength of wood are not founded on fact. Such beliefs include the popular supposition that wood cut from dead trees is likely to be weaker than that cut from live trees; that virgin growth or second growth trees all produce wood of a similar strength, and that the hard woods and soft woods are affected in opposite manners by the fact that they are first or second growth timber; that time of cutting has an important effect on the durability of wood; that air-dried wood is stronger than kiln-dried wood or vice versa. The author expresses the opinion that all these popular beliefs are either erroneous or are true to such a limited extent as to be unimportant from a practical standpoint.

The subject of lumber grading is important to the specification writer, since by the use of the standard symbols and terms adopted by the lumber industry for signifying the sizes or character of lumber he may make it very definitely understood exactly what kind and quality of lumber he wishes to use. The definitions of lumber grading terms, the abbreviations applying to lumber and various standard rules and grades are a result of investigation of the most approved usage current in the lumber industry and are standard, authentic and upto-date. The information contained in these pages of standard sizes, terms, and other usages is well nigh indispensable if one is to make really intelligent use of wood as it is commercially supplied. The tables and notes on working stresses give extreme fiber in bending,

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maximum horizontal shear, compression perpendicular to grain, and the modulus of elasticity for both select and common grades of a large variety of common woods, according to the purposes for which they are to be used in buildings or other structures.

One of the most important questions to be decided when wood construction is contemplated is, what variety of wood is best fitted to serve all purposes in that particular case. This is a question which is far too often decided in a haphazard and inefficient manner. Architects or their assistants are very likely to pass final judgment on this matter without devoting sufficient study to the governing factors and without having sufficient knowledge of the subject on which to base such an important decision. The enumeration of the principal woods used in building and construction, contained in this book, is intended to give information of practical value on the properties of the various species and to point out the uses to which each wood is most commonly applied. Judgment is needed to select the proper species for particular uses, but judgment cannot be better than the information on which it is based. Therefore an effort is made to give reliable, authentic information, based upon the experience of those who use wood in construction. The forest region in which each species grows is described, and the peculiar characteristics inherent in a species which affect its use in construction are discussed. Strength, durability, receptivity to paint or stain, and other distinguishing qualities are also outlined. Easy methods for the identification of common varieties of both hard wood and soft wood are described in a separate chapter, and the descriptions of the markings, textures and other characteristics of various woods are illustrated by small plates from photographs showing samples of the various species.

The preservation of wood has been practiced for centuries, but it was not till the beginning of the nineteenth century that the preservation of woods by the injection of chemicals became scientific in principle. Many materials have been used and many methods tried to make wood resist decay, insects and marine borers, and out of this wealth of experience, by the law of survival of the fittest, a few preservatives have come into extensive use. The best of these preservatives are described and their merits discussed. The methods of treating wood with these preservatives are also described. The practice of making wood fireproof or fire-resistant by use of various treatments has become quite prevalent in this country, about 50,000,000 feet of lumber being treated in this way in 1927, and the various methods of treatment for this purpose are also described and discussed. By far the most important form of preserving wood is. of course, by sealing the surface with paint or varnish. Good lumber which is kept properly painted will last practically indefinitely. Points covered in the chapter on paints and stains include such important considerations as the kinds of paint available; the methods of applying paint, comparing the desirability of the use of the hand brush with that of the spray machine; a schedule of paints to be used for various purposes; painting defects, including chalking, blistering and peeling, nondrying and washing paints, "alligatoring," darkening, gas discolorations, copper stains, brown staining, mildew, and various kinds of spotting. The knowledge as to the causes of and remedies for these various defects to which

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chedule ing deg, nonng, gas mildew, to the which paint is subject that can be gained from the pages here devoted to the matter will be of the utmost practical value in directing the painting of all sorts of structures. The advice on the actual choice of paints and stains and the hints on color combinations include a great deal of

information of the greatest practical value.

The great losses which are caused by the attacks of termites or white ants on wood, especially in southern or tropical regions, have led the author to devote a chapter to the discussion of these insects and the ways in which their damage may be combated or prevented. The chapters on light building construction and millwork cover in a most complete manner all the problems that an architect may be called upon to solve in connection with frame buildings or the finishing of other types of buildings with wood. The reproductions of construction details represent the most up-to-date practice in the detailing of wood work for use in building construction. The chapter on heavy timber construction is no less valuable as a guide to the laying out of heavy timbered structures such as mills, roof trusses, bridges, airplane hangars, and piles and dock and pier constructions. The chapter on temporary construction has to do largely with the designing of centering and forms for concrete and other masonry work, and a great deal of space is devoted to covering this rapidly developing field of engineering.

WOOD CONSTRUCTION; PRINCIPLES, PRACTICE, DETAILS. By Dudley F. Holtman. 711 pp., 6 x 9 ins. Price \$6. McGraw-Hill Book Company, Inc., 370 Seventh Ave., New York.

OF the various publications of an archæological nature issued under the auspices of American scholars there are few more interesting and valuable than the volumes which for several years have been published annually by the Harvard University Press and edited by members of the Departments of Fine Arts of Harvard and Princeton. These volumes, extremely well illustrated and richly printed, deal with various aspects of ancient painting, sculpture and the like, and each of the subjects discussed is treated after considerable research by some member of these departments who has made a particular study of the matter. The volume for 1929 is equal in every detail to those which have preceded it. The subjects treated are: "Portraits of the Evangelists in Greek and Latin Manuscripts, Part II," by A. M. Friend, Jr.; "The Illustrated Manuscripts of Prudentius," by Helen Woodruff; "A Spanish Altar Frontal in the Gualino Collection," by Walter W. S. Cook; "A Gothic Reworking of an Early Christian Sarcophagus," by Marion Lawrence: "The Gothic Frescoes at Monte Siepi," by George Row-ley: "Pietro Lorenzetti," by Ernest T. De Wald, and North Italian Gothic Ivories in the Museo Cristiano of the Vatican Library," by Donald Drew Egbert. Many of the subjects discussed have a direct bearing on architecture, which in one way or another makes use of all the arts, and these volumes, all of which are carefully prepared and well documented, constitute invaluable additions to the steadily growing accumulation of works upon these and other more or less related topics.

ART STUDIES: MEDIAEVAL, RENAISSANCE AND MOD-ERN. Edited by Members of the Departments of the Fine Arts at Harvard and Princeton Universities. 206 pp., 70 plates. Price \$3.50. Harvard University Press, Cambridge, Mass.

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NUMBER SIX

# CONTENTS

### HOTEL REFERENCE NUMBER

#### PART ONE—ARCHITECTURAL DESIGN

Cover Design: Duning Room, Hotel Governor Clinton, New York		El Mirador Hotel, Palm Springs, Cal. Walker & Eisen	136-138
From a Water Color by Roland Anthony Wank The Editor's Forum Pa	ige 33	Arizona Biltmore Hotel, Phænix. Ariz. Albert Chase McArthur	139-141
Thomas Hastings: An Appreciation	35	Hotel Hawthorne, Salem, Mass.  Smith & Walker and H. L. Stevens & Co. 1	142, 143
Royal York Hotel, Toronto Fronti From a Water Color by S. H. Maw	spiece	Hotel Apache, Yuma, Ariz.  Gilbert Stanley Underwood & Co.	144
PLATE ILLUSTRATIONS Architect	Plate	LETTERPRESS Author	Page
Santa Barbara Biltmore Hotel Reginald D. Johnson 12	00 132	The New Hotel Parker Morse Hooper	583
Oasis Hotel, Palm Springs, Cal. Lloyd Wright 13		Efficient Planning for Economical Operation  J. Otis Post	667
Molly Pitcher Hotel, Red Bank, N. J. Nathan Harris and Harris & Sohn	135	Hotel Decorations and Furnishings Henry J. B. Hoskins	702
PART TWO—ARCHITECTU	JRAL	ENGINEERING AND BUSINESS	
Olympus, 1929 Fronti	spiece	Reduction of Noise in Hotels Clifford M. Swan	741
LETTERPRESS Author	Page	Modern Kitchen Equipment Construction Victor R. Bliss	745
The Present Status of the Hotel Business James S. Warren	711	Requirements of Hotel Garage Design Roger B. Whitman	751
Making Hotels Financially Productive Preston J. Bradshaw	715	Heating and Ventilating of Hotels Harry J. Cullen	755
Analyzing Hotel Financing Methods Paul Simon	720	Modern Hotel Lighting A. D. Bell	761
Planning the Hotel for Maximum Flexibility and Utility William Hull Stangle	723	Consideration in the Selection of Elevator Equipment for Hotels Roger B. Whitman	765
Features That Make Hotels Profitable J. O. Dahl	728	Vacuum Cleaning in Hotels A. Lincoln Scott	767
Modernizing Existing Hotels. C. Stanley Taylor	751	Hotel Laundries Clifford Wayne Spencer	771
Hotel Front Office Equipment	727	TL D. The Chair	772



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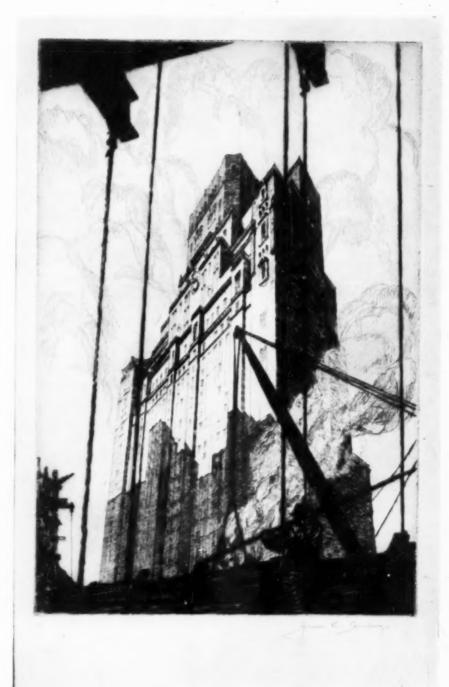
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From an Etching by Gerald K. Geerlings

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The Architectural Forum



# ARCHITECTURAL FORUM

VOLUME LI

NUMBER SIX

## THE PRESENT STATUS OF THE HOTEL BUSINESS

DECEMBER 1929

BY

JAMES S. WARREN

EDITOR Hotel Management

FAR-REACHING changes have taken place in the hotel business in the past 12 years. While it is a fact that this is also true in most, if not all, other business fields, there have in this period been several outstanding changes in the nation's economic structure which have peculiarly and individually affected hotels.

Prohibition's Effects. In the first place, the Eighteenth Amendment and the Volstead Act did away with the hotel bar. Almost overnight the most profitable source of revenue in many hotels was wiped out. Insofar as hotel structures were concerned, the problem presented was not particularly serious. Progressive hotel operators and architects were quick to devise other revenue-producing departments or services that could be installed in the former bars. Frequently these took the form of coffee shops or cafeterias (the latter are now waning in popularity, by the way), while in other cases stores, beauty parlors or soda fountains were substituted.

From the standpoint of net profits, however, Prohibition brought with it a most serious problem for hotel executives. Particularly in those hotels whose bars had become popular service features, was it found impossible to make their substitutes produce the same revenue. As shown by one of the accompanying charts, hotel rates were materially increased, and fortunately accommodations were at such a premium at the time that higher prices were paid by the public with little complaint.

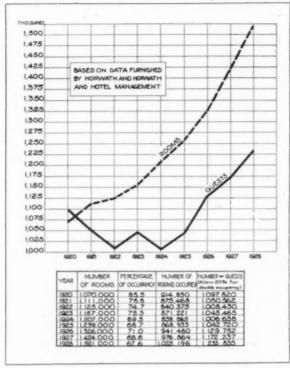
On the constructive side of the problem, however. Prohibition did do this for the hotel business: For the first time hotel men at large came to appreciate the fact that they are modern business men and in business for the purpose of making a profit on the major items they have for sale,—their rooms and food. Theretofore they had relied in far too many instances on their bars to carry the burden of their entire establishments.

Shortly after Prohibition's advent,-and due

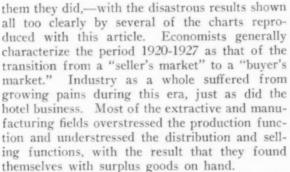
no doubt to this new and more businesslike attitude,—a demand for educational training and for basic operating facts began to make itself felt. In 1921 Frank A. Dudley, President of the American Hotel Association, went to the Federal Board for Vocational Education in Washington with a request for an educational survey. "Vocational Education in the Hotel Business," by Layton S. Hawkins and W. I. Hamilton, was the result, and it laid the foundation for the widespread program of hotel education and research that followed. All hoteldom became imbued with a new and wholly desirable sense of its importance in the business community and of its responsibilities to society. Hotel men had graduated from tavern keepers to civic hosts; they represented their fellow citizens well or poorly in proportion to the degrees of comfort, convenience and safety which they afforded visiting strangers.

With this new enthusiasm and this new ideal of hotel service it followed quite logically that great strides were soon made in the raising of operating standards, in service refinements, and finally in net profits. Hotel men themselves became so enthusiastic and "sold themselves" and their hotels to their communities so successfully that their fellow business men, in turn, began to look to the hotel business as an added source of individual profit.

The Boom of 1920-1927. They saw what their local hotels, with their improved appearance and service, had done for themselves and the towns. Hotel promoters were not slow to grasp the situation, and in many instances to create such a situation where it had not hitherto existed, with the result that bigger and better hotels began to spring up in many communities that could not afford them. "No hotel is too good for Blankville; we should have as fine accommodations as can be had in New York or anywhere," became the slogan at innumerable Chamber of Commerce, Rotary, Kiwanis and "booster" meetings. And have

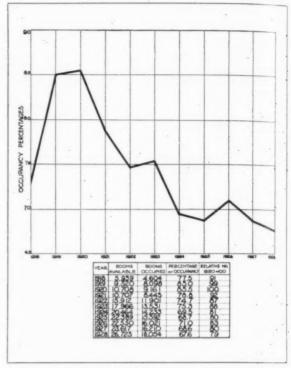


Trend of Number of Rooms and Guests Showing Large Increase in Rooms Available in Recent Years



Over-production. There is, however, this very marked and fundamental difference between the overstocked miner or manufacturer on the one hand, and the overstocked hotel man on the other. The former can curb his future production and store his present stock until the opportunity comes to dispose of it. Or, if his product happens to be perishable, he can profit from his experience and regulate his future production accordingly. A hotel room, on the other hand, is a most perishable commodity. Every night it is not sold it represents an irretrievable loss, for that night will never return. And once a hotel is built, it is there to stay for many years; there is no way a hotel man can curb his production. He can increase it, but he cannot decrease it.

The 1928 Situation. This over-built situation had become so acute by 1928 that hotel associations and hotel publications began to actively dis-



Trend of Occupancy Percentages in European Plan Transient Hotels, Showing Decrease in Room Occupancy

cuss ways and means of combating it. The chief difficulty lay in the lack of basic total statistics regarding the hotel business. The federal government had never seen fit to identify hotels as a separate entity in its statistical compilations of business facts, with the result that the size of the hotel business, the capital invested in it, its annual turnover, number of employes, and so forth, were largely matters of conjecture.

The Investigation. In March, 1928, editors of Hotel Management conceived the plan of having a fact-finding survey that would disclose such data as we just mentioned, made by an independent and reputable organization, whose recommendations, as based on its findings, would carry weight with the investing public and with the other groups interested in hotel projects. The Engineering-Economics Foundation, a post-graduate college of Boston, which specializes in ascertaining and disseminating fundamental economic facts to men in business, was selected for this purpose. The financial sponsors of this survey were the Bowman-Biltmore Hotels Co., Eppley Hotels Co., Hotel Astor, Hotels Statler Co., The Savarins, Inc. and United Hotels Co. of America. Much credit is due these organizations for their generosity in advancing the fee the Foundation requires for all such undertakings as this for a cause in which all hotel men benefited equally.

A committee of 18 practical hotel operators was organized for the purpose of defining the

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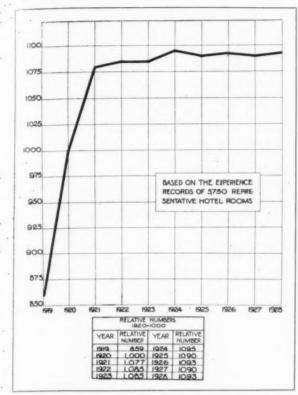
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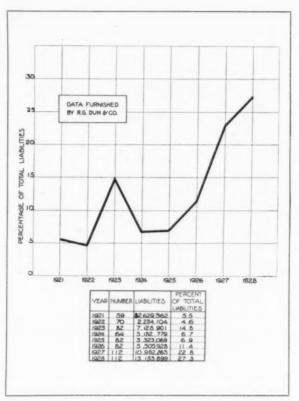


The Trend of Room Income for European Plan Transient Hotels. Room Rates Have Not Changed Recently

scope of this investigation and advising with the Engineering-Economics Foundation from time to time. The fact-finding part of this investigation occupied virtually a year's time. This period had been established in advance, due to the fact that all the interests involved realized that the Foundation would have to work in a virgin field. The accompanying charts are representative of the fundamental economic information developed in the course of this survey, and the statistics they give are the first authoritative trend data developed for the hotel business. These charts, in the form of reprints of progress reports on this survey, were published in Hotel Management. The final step in this last, or "fact-disseminating," stage of the survey will be the publication, in January, 1930, of a book "Promoting New Hotels,-When Does It Pay?" by Harper & Bros. This volume will give the results of this year of original research in detail, with particular reference to the community hotel promotion problem.

Recommended Procedure. Of the overbuilt situation, Dr. Hollis Godfrey, President of the Engineering-Economics Foundation, writes:

"Now that the Foundation's study of supply and demand in hotel rooms has been brought to a conclusion, and the facts this study brought to light have been transmitted to the interested groups through your publication and other me-



The Trend of Hotel Failures Shows a Steady Increase. The Other Charts Indicate Reasons for this Trend

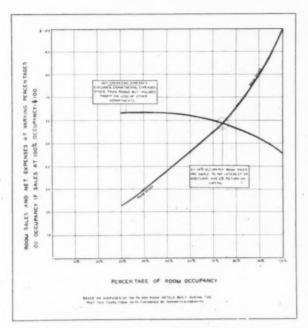
dia, I feel confident that the Foundation's staff will be entirely safe in emphasizing our original tentative recommendations with regard to the serious economic status of this business wherever, in the course of our contacts with other business fields, we feel that they may prove of value. You will recall that these were:

"First,—That city hotel associations whose members are threatened with the over-construction menace conduct a survey similar to that recently carried out by the Hotel Association of New York.

"Second,—That before any new hotel is financed a detailed and unbiased survey be made by qualified and experienced hotel experts and accountants, and that prospective investors be urged to request all such information as this and to consult with their bankers regarding the investment.

"Third,—That hotel and allied interests insist upon a stricter enforcement than is at present exercised of the laws regarding the issuance and sale of real estate bonds, to the end that inflated appraisals and speculative securities will be eliminated from hotel financing."

Findings of Investigation. Architects will be vitally interested in the findings resulting from this survey for two important reasons. In the first place, because the hotel business at large has



Profit Trend with Varying Percentages of Occupancy. European Plan Transient Hotels Only

of late found itself in a precarious condition due to over-building, architects will want to be particularly careful henceforth, when they are asked to design new hotels, to ascertain insofar as possible in advance whether there is a real need for a hotel of the size and type contemplated in the proposed location. Otherwise their prestige will suffer, for no architect who has his future to consider can afford to identify himself with a building that becomes a failure financially,—no matter how well it may have been planned.

In the second place,—and particularly in the smaller centers,-architects are frequently asked to accept stock in new hotel ventures as part or all of their fees for designing them. In such cases it is obviously of direct interest to architects to analyze the proposed hotels' profit possibilities. A careful survey of any proposed hotel's profit possibilities should be made in advance by competent and unbiased experts. I have been given access to a number of reports of this kind, and it is surprising how close their predictions have come in most cases to the actual operating experiences of hotels for which they were made.

There should be borne in mind the fact that it was never the purpose of the Foundation's survey to indiscriminately discourage the building of all new hotels. The hotel business is great and growing,-and has unquestionably become better stabilized in the last six months. Horwath & Horwath, hotel accountants and consultants, whose experience and statistical resources were of

great value to the Foundation in the course of this investigation, issue a monthly bulletin showing the aggregate business of their hotel clients. For the past six months this report has shown that this year's business has been from 1 to 4 per cent better than the corresponding month of 1928, whereas during the same six months of 1928 the same group of representative hotels reported a total volume of business that was from 2 to 8 per cent worse than for the corresponding months of 1927.

Airports. The great number of airports (over 2,000, according to a recent estimate) that are now in operation or in process of construction throughout the country offer unique opportunities for new hotels in many instances, although it should be very carefully ascertained in advance in each case how well the hotels in the adjoining communities are equipped to serve the new classes of patronage that these airports are creating. The apartment hotel field is one which will bear careful scrutiny by the far-seeing architect. According to many authorities, developments of this character are still in their infancy, and it is a fact that the "apartment hotel idea" is spreading very rapidly from the larger to the medium sized cities throughout the country.

Modernizing. In my opinion there is an even greater opportunity for creative architectural service in the remodeling and redecorating of existing hotels of all types. Hotel men have come to realize that the best method of staving off competition from further new ill-advised hotels is through the modernization of their buildings, both interior and exterior. The architect who can make a presentable structure out of the "Early Yapank" type of hotel, which now dots our cities all too thickly, will indeed establish himself as having marked ingenuity and artistic skill. The financing of hotel remodeling operations is usually less of a problem today than the raising of

funds for a new building.

Recent investigations (by Horwath & Horwath) have shown that the hotel business now ranks seventh in the United States in point of capital invested and number of employes. So long as its growth is directed along the proper lines, it will continue to grow in profits and prestige, for travel is tremendously on the increase, and "bed and board" are necessities which no traveler can do without. Because of their high ethical standards and detached viewpoint, architects are looked up to as leaders in all civic developments. For this reason they can do more than any other one group to guide the hotel growth of their communities into the most profitable and permanently safe and sound channels.

# MAKING HOTELS FINANCIALLY PRODUCTIVE

BY

#### PRESTON J. BRADSHAW

ARCHITECT, OWNER AND OPERATOR OF THE CORONADO HOTEL, ST. LOUIS

THE hotel project as a product of the architect is purely an economic problem. This includes the relationship that design and artistic success may have with it. It is a financial product and exists only because of its ability to produce financially. It becomes a concrete product through the coördination of the owner (or let us speak of him in terms of his mouthpiece, the operator) on the one hand and the architect on the other.

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As for the selection of the architect, he may be selected for his ability and experience in this particular line of endeavor; he may be selected because of his influence with the money interests or other similar controlling factors; or because of his natural ability as a salesman to interest the owner in his services. And he is usually chosen for either of the last two reasons. This architect generally thinks of his project only in terms of a facade and a typical plan. The first is usually stereotyped, and the latter a stock idea. He thinks only of a row of bedrooms with baths behind this, back to back in the accustomed man-Having settled these two phases of the project, he is perfectly satisfied with it and considers the remainder of the work something which will just naturally work out. And actually, he has not even begun!

A horse racer, placing his hopes upon his horse to win the race, assures himself first of the jockey's understanding of the horse, and so it should be with the selection of the architect. The hotel product in its embryonic state evolves from certain visionary ideas in plans of the owner which the architect must mould into a physical mass of perfection from a viewpoint of beauty and productivity. So it is apparent that the architect must join in unison with the operator. He must realize that every portion of this work down to the smallest detail has some bearing on the success and operation of the hotel. Let us then, as an architect, remove our professional cloak and work in terms of the operator.

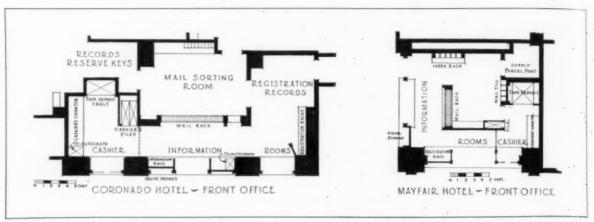
The hotel is defined in several ways: as a house for entertaining strangers or travelers; as an inn of the better class; as an abiding place of persons who are lodged with or without meals. Fundamentally the hotel is a domestic establishment. It will succeed only in proportion to its ability to provide domestic services and homelike convenience and environment. This enterprise can become profitable only when this purpose is fulfilled,—considering the guest from the moment he enters the establishment until he again

passes through the door on his departure. All this service in terms of financial productivity is brought under three divisions: rooms and their service; food and its dispensation; and auxiliary service which incorporates the various remunerative services which the guest may desire. All other functions of the hotel exist only as subservient to one of these. Depending upon the type and size of the hotel, these functions vary in importance and extent. Let us consider only the normal transient hotel of 300 or 500 rooms.

Room Service. Furnishing guest room service is the primary and foremost purpose of the hotel. The moment the guest enters, the necessary service is in motion to accommodate him in as efficient and expeditious a manner as possible. Proper planning is absolutely essential for the delivery of this service to the patron without interruption, if the good will of the guest is to be obtained and held.

The Front Office. Let us consider first the desk or front office which is actually the heart of the organization. Strangely enough, the details of its operation and the equipment necessary are usually left to the last minute, with the result that the management must often re-adjust and install equipment after the hotel is in operation. In the medium-sized hotel the desk is usually divided into three sections,-registration for rooms, information, and cashier. Modern devices have greatly simplified the working conditions of the office, and their consideration is essential in the planning of the layouts. One of them is the telautograph or similar system which serves as the means of communication between the various departments, marking the arrival and departure of guests, the handling of charges, etc. It is desirable to sink the telautograph machine into the counters of the office so as to be level with the tops of the desks. Then there is the pneumatic tube system which is particularly necessary in the larger hotels. Charge accounts and C.O.D.'s. must reach the cashier immediately on execution, and in the larger hotels where certain departments are far removed this is quite important. Space must be provided in the cashier's cage for this service. There is also the cash register accounting machine, which has been adopted almost universally for the handling of accounts, because of its accuracy, speed, safety, economy, and the cleanliness of statements when presented.

The cashier's cage must have sufficient working space with a counter adjoining the desk. The proper space must be given the safe deposit vault, which should be placed in direct view of the guest



Front Offices of Two Hotels Arranged for Efficient Service Preston J. Bradshaw, Architect

standing at the cashier's window. There must also be space for the guest credit files, which in some hotels reach very large proportions. These three essential departments of the office must properly incorporate and consider all the factors previously mentioned. They should be properly arranged with respect to one another, involving a minimum of lost motion. The accompanying floor plan of the Coronado Hotel front office is an excellent example incorporating all these requirements. It has proved very successful in operation; it is large enough to handle the maximum amount of business and yet sufficiently compact to be controlled at night by a minimum number of clerks. The essentials in the planning of the office are of necessity compactness, ease of operation, and service to the guest. The Mayfair Hotel layout is a particularly compact plan; however, it is not called upon to do the large volume of business which the Coronado Hotel office is required to do.

Typical Floors. Let us follow the guest to the typical floor. We will not attempt in this article to delve into furnishings, carpets, or fixtures, which are all in another realm of planning and maintenance. We might assume that an economical plan has been evolved, obtaining desirable rooms throughout. The exact grouping of furniture must always be considered in determining the possibilities of the room. It is not necessarily the square foot area that results in the desirability of the room, but rather the grouping of the furniture in relation to the shape of the room.

The question of materials and equipment for the typical guest room and bath is usually not thoroughly investigated and understood. However, the question of maintenance is directly involved. The painting of walls with a zinc paint not too roughly applied is most satisfactory, especially in cities where the smoke nuisance is a great evil. The walls can easily be washed, and if the shades are soft, the resultant appearance of the room can be made very pleasant and home-like. A full-sized mirror is essential in every bedroom. Enough electric outlets must be provided. These should be placed to conform to the pre-arranged furniture grouping. Radio equipment must be considered. The head-phone sets are not the most desirable. In their stead, we have arranged a built-in unit in the closet with a disc loud speaker placed behind a register at the ceiling. This eliminates pilferage of the sets on the part of the guests.

Bathroom Equipment. The bathroom should have a marble threshold to withhold water that may reach the floor. A stationary ice water faucet over the lavatory is better than a swivel type, as it prevents careless leakage. A full-sized medicine cabinet is preferable to a mirror and shelf. A pin rack is more desirable for towels than a flat rack. Pulling a towel hurriedly from a shelf usually causes the whole supply to fall. An ordinary 75-watt light on the medicine cabinet should be sufficient illumination for the bathroom, but by all means it should be controlled by a switch. It will save untold activity on the part of the engineer in replacing pull socket chains. There should be an electric socket near the medicine cabinet for the use of curling irons. These are some of the innumerable items which must be considered from the viewpoint of the operator and which are usually overlooked or not considered.

Floor Services. The typical floor should also have the necessary service in connection with it. The need of adequate helps' closets on each typical floor is imperative. There should be a maids' closet containing the slop sink, and also a toilet; the housekeeper will have better control over the maids if they can remain on the floors to which they are assigned. The linen closet should be large enough to provide an adequate supply of

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linen, carpet sweeper, hairbroom, and supply baskets. There should be a telephone in each with buzzer signal and a light indicator to the corridor to be easily visible to the maid. It saves the housekeeper many steps and gives her the means of notifying the maid of check-outs. In most cases the service hall is of necessity very small, and the noise connected with it very objectionable, due primarily to the slamming of elevator doors. It is desirable to soundproof the ceilings of these halls. The service doors should have ball-bearing hinges and door checks.

In conjunction with the guest room service, there is the proportionately large organization in the "back" of the house which is necessary to produce and maintain this service. There are the departments under the control of the house-keeper, those under control of the engineer, the storage rooms, work shops, locker rooms, and print shops.

Important Storage. Large amounts of money are dissipated by many hotels because of the lack of storage spaces for the various departments where seasonable merchandise must be stored. In planning the hotel the architect usually is cramped for space when he begins to lay out the mechanical equipment and service rooms, and consequently the locker rooms and storage rooms usually suffer. It is well to keep in mind the great amount of waste which results from the improper storage of furniture. Every hotel should have an adequate furniture storage room. This item is too often omitted from the plans. The room should be large enough to store all the wicker furniture which is used either on terraces or in the lobbies, couches and chairs waiting for the upholsterers, bed ends, proper shelves for mattresses and racks for box springs, baby cribs which are usually kept on hand, and various other items necessary for the proper operation of a first class hotel. In conjunction with this, there should also be the upholsterer's shop, paint shop and repair shop. In a 500-room hotel it requires two upholsterers, starting a year after the opening of the hostelry, to keep pace with the deterioration of the upholstered furniture. usually provided in this department for glue pots, and various electric outlets are necessary. There should also be rack space with dustproof doors for the upholstering material.

There should also be a paint shop for the storage of paint, and also shelves and racks for the painting of screens, waste paper baskets and other such items as come under the painter's jurisdiction in addition to his wall work. The furniture refinishing room should immediately adjoin this shop, so that men can work in either department, depending upon the amount of work on hand. This department can become economi-

cally a very successful department, as I have learned from experience. On one occasion I was charged \$1.50 per chair for the refinishing of 600 chairs which consisted of sandpapering, one coat gold lacquer, and one coat clear lacquer. Later I had a refinisher at a salary of \$165 per month to refinish the same chairs at a cost of 35 cents each. This type of economy is possible in any hotel if the space is provided. I have found that having these departments, properly set up with the correct equipment, is an incentive for the manager to keep his furniture in good order, and at a minimum cost.

The carpenter shop should also be placed with this group. It should be of sufficient size for the storage of lumber, panel stripping, and crates. Practically every good sized banquet or convention requires special carpenter work, platforms, etc., the hotel profiting by using its own men and charging the guest.

It is desirable to place these allied service departments under the main roof, primarily because of the economy of this area if incorporated with the pipe and duct spaces, but also because of the available light and air, and the isolation from the rest of the building.

Housekeeper. Let us give the housekeeper's department its due consideration. A great amount of money can be saved if this department is ar-There must be an intelligent ranged properly. spacing of the tables, shelves, and bins for the sorting and mending of linens. Space should be provided for the handling and storing of winter blankets, hangings, and rugs which are stored during the summer months. We must remember that the housekeeper must have under her immediate control the complete inventory of the "live linen storage" and the reserve. If the house is to include a laundry, it is advisable to have the linen storage, sorting, counting, and housekeeping department grouped with it to minimize passing the linen to and from these rooms. A laundry is a very desirable investment in any hotel operating above 400 rooms. It will save the hotel in the immediate cost of operation as well as in the saving of the linen.

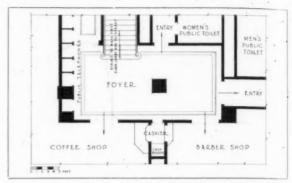
From the viewpoint of the owner, the food service should be the most important part of hotel operation. It is the most dangerous and may be the most disastrous from the financial point of view. Many hotel operators will disagree with me and minimize this statement. With the construction costs of hotels mounting to such high levels in recent years, and with the room rates on such a competitive basis, a hotel can survive only if it looks upon its food department as a source of profit.

The planning of the kitchen, the type of dining rooms, the extent of service, and the kind of equipment form an inexhaustible subject and vary greatly with local conditions. However, we can strike certain notes of warning and guidance that will assist greatly in an economical scheme and bring forth matters not always considered. We cannot say what kitchens are necessary or just how they shall be arranged. Every individual, no matter how experienced, has individual views which will not agree with those of another. My experience in employing chefs is that no two have the same ideas, so I have adopted a system of planning according to my own conclusions, and those connected with its operation will agree that it is in accord with their ideas.

Usually, with disastrous results, not enough space is left for the kitchen service, and the necessary equipment cannot be included. On the other hand, a kitchen may be too large and unwieldy to produce economical results. It is very true that a small crew in an ample space is more efficient than a large crew in a small space. The keynote of kitchen planning is centralization. It must produce a compactly arranged main kitchen with its secondary departments controlled efficiently from it; it must consider accessibility to the supply or steward's department; it must control the various lines of traffic necessary to operate the department; it must solve the important dish problem; it must, above all, take into consideration room service and banquet service.

A kitchen is normally provided with abundant range space, but is very seldom given sufficient refrigerated box area. After all, boxes are not expensive when properly grouped. The garde manger should have sufficient space for salads prepared in advance, dressings, cleaned fruits, cut butter storage, and numerous other items. A smaller crew can capably handle the peak load if there is sufficient space to store such dishes as can be arranged ahead of time. There should also be a refrigerator for the chef to store his prepared soups and vegetables. The garde manger counter should have iced bain maries of sufficient size and refrigerated space for cold plates and salad bowls. Similarly, the cook's section must have adequate hot bain maries and abundance of heated space for hot plates.

It is desirable to place the bakery and ice cream department close to the main kitchen; if not, it should be placed directly under the pantry where a dumb-waiter can operate between the two. The bakery should have long bins with marble tops in close proximity for the storage of raw materials. In addition, there must be wooden trays and kneading boards for the bread department. Electric ovens have been found very satisfactory. The ice cream department should have a good sized freezer box with direct expansion coils acting as shelves. This space is often made too



Basement Foyer of the Lennox Hotel, St. Louis
Preston J. Bradshaw, Architect

small where large banquets may have to be served. Bulk ice cream is kept in racks with sufficient capacity for at least 50 to 70 gallons' storage.

Consider the amount of motion saved if the store room can adjoin the kitchen. Here sufficient shelf space is provided for week-to-week canned goods, bottled goods, and all the other staple lines of food. It is in reality a complete grocery store under the control of the steward. If possible, the refrigerator storage boxes should lead off of his room, as they are also under the control of the steward. These boxes should be as large as possible to permit of greater buying volume. A bulk storage room may be placed on the larger level for barrel and case goods. Space should not be overlooked for the storage of china and glass. All these rooms must be directly under control of the steward, and everything for which he is responsible.

The dish pantry is always a problem. I have found it very desirable to place this department on the lower level from the kitchen. It takes the dirt and noise out of the main work room and permits of better storage of soiled dishes resulting from rush periods. There will be a consequent saving of labor if a smaller crew can operate continuously throughout the working day without choking the system. With the perfection of conveyors, it is really simpler than it sounds. At the Coronado Hotel, the dish pantry was part of the main kitchen, but later it was moved to the basement and operated from subveyors with much success. A layout of this room is presented herewith. If the dish pantry cannot be placed in a separate room, it should be well soundproofed.

When the general plan is decided, and the elevators and kitchen locations settled because of certain limiting conditions, let us hope that they are sufficiently close to each other to provide effective room food service. A proportionately large amount of revenue can be derived from this service, as an increase in price is made over the usual dining room charge. The space for room service should by all means be placed as close to

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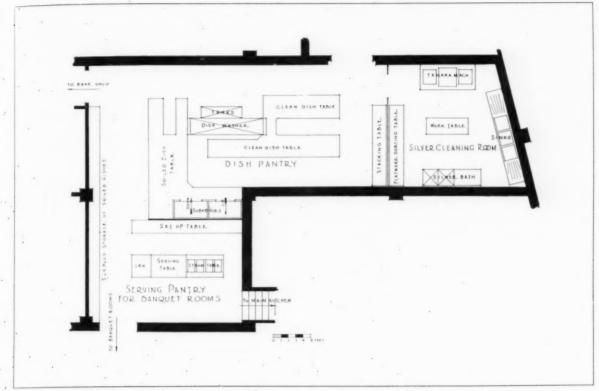
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Plan Showing the Dish Pantry, Silver Cleaning Room and Serving Pantry of the Coronado Hotel, St. Louis
Preston J. Bradshaw, Architect

the service elevator as possible. One elevator should be set aside during the busy food periods for the exclusive use of this department. With this convenience, a waiter can make a complete trip in 10 or 15 minutes. The room should be large enough for 15 or 20 service tables, charcoal burners and a desk for checker or order clerk.

Where the banquet rooms are located on the same floor as the main dining room, a banquet department can easily be arranged with little expense as an adjunct to the main kitchen. It will require a long, low counter, one end equipped for hot plates and the other for cold service. Sufficient refrigerated space is necessary for the storage of fruit salads or desserts, which must all be prepared ahead of time. In connection with the hot service a hot *bain marie* for soup containers and two large broilers, which will take care of most banquets of up to 500, will suffice.

Shops and Services. In the general planning of the hotel there become involved all the auxiliary services which the operator should depend upon for their proportion of the revenue. In this respect he must look upon himself as a merchant surrounding himself with a maximum number of sales opportunities. Many operators do not realize this. Such departments as the barber shop, cigar shop, flower shop, and telegraph concession can become very profitable adjuncts. One

must always consider the psychological effect upon the guest in locating them with respect to his environment. Strangely enough, in the Coronado Hotel the cigar shop is not anywhere near the main lobby but is located in a shop corridor adjoining which is a broker's office and which leads to the popular coffee shop. As a result, this counter does a large volume of business, and due to its location it also handles the checks for the coffee shop. The Lennox Hotel presents a successful grouping of such interests. One would not normally consider the basement a successful location for a barber shop in this particular project. But the successful grouping of shops serving allied purposes around a public basement lobby which serves as an entry to the coffee shop, popularizes this location. This lobby has a spacious stairway leading directly to the street and also to the lobby. In the accompanying plan of this grouping, note also the combination cashier's desk serving both the coffee shop and barber shop.

The entire procedure in the operation of the hotel is to economize as much as possible, and yet satisfy the guest. For, after all, a hotel exists only through the patronage of the guest, and whatever may be necessary to attract and invite this individual is a desirable investment. It includes such details as exterior illumination, brilliant furnishings, fixtures and decorations.

## ANALYZING HOTEL FINANCING METHODS

#### PAUL SIMON

OF HORWATH & HORWATH, SPECIALISTS IN HOTEL ACCOUNTING

RRESPECTIVE of the beauty of a hotel, the architect's reputation will not gain if, from a cold blooded business point of view, the hotel's operation cannot result in profit. It may seem at first glance that the architect cannot possibly and should not be held to blame for all the factors entering into hotel operation entirely outside of his control and of his immediate responsibility.

In this paper we are not concerned with possible errors in layout, which may have caused increased expenses of operation or curtailed convenience and comfort to guests. We also do not want to go into the serious but frequent blunder of erecting the wrong type of hotel in a given location or under certain given conditions, but we do want to consider that hotel where the architectural structure is all that it is supposed to be. but where the financial structure is such that eco-

nomic success is endangered.

Fees in Stock. Every hotel building, residential or transient, is a special building, usable ordinarily only for the one purpose for which it has been planned, and there is at least a strong moral obligation on the architect's part to be reasonably certain, that with proper management, the enterprise has a fair chance to succeed. This moral obligation becomes stronger in ratio to the closeness with which he has been in contact with the beginnings of the enterprise, and it is most pressing where and when,—as is so frequently the case,—the architect has been the,—or one of the,-promoters. In many cases he has to accept part or all of his fee in stock or other securities of the hotel and is expected to make arrangements of a similar nature with contractors.

"Value" and "Price." In all cases it behooves the architect to keep in mind that even the finest. most durable and well balanced construction may crumble under the load of a financial super-structure which is too heavy a burden. If a hotel building is erected, a new value is created. This "value," however, is not necessarily equal to the "price." The building may be worth in material and labor all that it has cost, and still be a liability rather than an asset, if the operation does not yield a proper return on the capital and in addition does not return the original capital during the economic (i.e., useful) life of the building.

Fundamentals of Financing. It is essential to limit ourselves in this article to the consideration of the most fundamental aspects of hotel financing which, however, must include an understanding of the hotel industry. It is a fact that

100 per cent occupancy over even a relatively short period of time is an impossibility in hotels. and percentages of occupancy exceeding 90 per cent (as found in office buildings under advantageous conditions) are extremely rare even in apartment hotels where leases of a year or more are demanded. In transient hotels, experience shows that an occupancy exceeding 70 per cent over a period of a year or more is the rare exception.

When arranging for the financing of a hotel, bonded liabilities should not exceed the point where the annual obligations arising in connection therewith exceed the earnings which will be available under the most conservative expectations regarding occupancy. In the case of transient hotels, the danger line is rarely lower than 60 per cent. It follows, therefore, that the amount of the first mortgage cannot be safely determined simply by measuring it in proportion to the total cost of land and building, and that the ratio of the interest and principal payments to the expected earnings is the more important factor.

Earnings' Ratio to Interest. Investment bankers and security commissions usually want the estimated earnings available for interest to equal from  $2\frac{1}{4}$  to  $2\frac{1}{2}$  times the maximum interest. In the cases of hotels constructed and financed in recent years, the available earnings have attained that proportion in relatively few instances.. The most frequent causes for the actual results falling short of those anticipated were:

1, Hotels built in excess of actual needs.

2. Mortgages too high in comparison with possible earnings, even if in proper proportion to the value (price) of the assets.

3. Principal payments too high or starting too

4. Over-estimating volume of sales.

5. Under-estimating operating expenses.

All five reasons strongly point to the necessity of there being a thorough and unbiased survey before arrangements for financing are made. Many times an extra story or two, an elaborate banquet room or other facilities and accommodations in excess of practical need have increased the cubic contents, and consequently the cost, and finally the borrowed capital to a point where the burden became too heavy.

The higher the mortgage the greater, of course, become not only the interest but also the amortization payments. These payments must be met, to avoid foreclosure or dispossession, and many a

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good hotel project has been wrecked because the management, in fear of this sword of Damocles ever hanging over its head, busy to scrape together the money necessary to meet the payments, was afraid to make essential expenditures for promotion or upkeep and maintenance.

Bonded Debt and Stock. In financing a hotel one of the prime rules ought to be to keep bonded indebtedness at a level sufficiently low, so that all obligations in connection therewith can be met, even under the most disadvantageous conditions. If further financing is necessary, such requirements should be taken care of by the sale of "income debentures," or of some type of stock issue. It is the modern trend to combine such junior financing with privileges of conversion into common stock or with a bonus of common stock. A combination of this kind is logical and practical: logical because the greater risk involved entitles the purchaser to a share in the possible eventual greater profit, and practical because its salability is increased through the appeal to a public with increasingly speculative instincts.

Typical Financing. If we assume, for the moment, that the hotel is exactly right, i. e., that it fills a need in the community, that its size, layout character, appearance, type and location are 100 per cent good, that the management is capable and efficient and that, therefore, the volume is in proper proportion to the available accommodations, and that the operating profits are in the proper proportion to the volume (all of which is quite a presupposition), then we can arrive at imaginary ideal ratios of the various types of financing to the related types of investment.

This table shows a normal ratio of the various assets of a hotel to the total investment:

assets of a notel to	the tota	investment:	
Land Building			21.00% 59.00
Furniture and Fixtures Deferred Charges and Current Assets	Prepaid	Expenses	13,50 1.00 5.50
Total	,		100.000%

Correspondingly, we give listed here a typical set-up of the means of financing the requirements as found in recent hotel projects:

First Mortgage Serial Gold Bonds	52.00%
Second Mortgage (payable in five years)	24.00
Unsecured Notes	5.00
Stock (preferred and common)	19.00
Total	100.00%

The type of financing just outlined shows that the First Mortgage Bond issue equals 65 per cent of the value of land and building or 52 per cent of the total requirements, which is the usual proportion, but since the actual investment, as represented by the outstanding stock, equals only 19

per cent of the total financial requirements, it is necessary to obtain further financing by arranging a second mortgage and, in addition thereto, evidently part of the furniture and equipment purchases has been paid by notes. These notes necessarily are unsecured notes, because the investment house underwriting the first mortgage issue generally and justifiedly insists upon clear title for furniture and equipment, the reason being that, in the case of a foreclosure, the uninterrupted conduct of the business would be jeopardized if a third party had title.

The great danger in financing of this type is that, not only interest, but also principal payments on second mortgage and notes must be met during the initial years of operation. Even under the most advantageous conditions a new hotel requires a period of seasoning and ripening and finds its stride only very rarely before the third year of operation. Since the construction period consumes generally at least one year, a normal business cannot be expected sooner than four years from the date of the issue of the mortgage loans. It follows, therefore, that even if in later years the hotel might be able to carry the burden, the first few years would probably end in disaster. A hotel consequently cannot be considered to be soundly financed if heavy payments are obligatory in the first three or four years.

Inasmuch as a first mortgage usually cannot, and should not be secured in excess of 65 per cent of the combined value of land and building, and inasmuch as these items equal approximately 52 per cent of the total financial requirements, sound financing would call for more than 19 or 20 per cent of owner's investment. The difficulty is that the rate of return is hardly sufficiently attractive for a cash investment of nearly 50 per cent without security greater than that offered

by capital stock.

To see just what that means is easily shown by a simple example of arithmetic. For example, an operator or an operating corporation has in mind the promotion and erection of say a 100-room hotel, and this hotel, including land, building and equipment is to cost \$600,000. The earnings, before interest and depreciation are deducted, are expected to be \$60,000. If \$500,000 of the total investment is borrowed at an interest rate of  $6\frac{1}{2}$  per cent, amounting to \$32,500 per annum, the profit available for depreciation and dividends would be \$27,500 or 271/2 per cent on the owner's actual investment of \$100,000. \$300,000 were borrowed, even at the lower interest rate of 6 per cent, amounting to \$18,000 per annum, the return available for depreciation and dividends would be \$42,000, representing 14 per cent on an investment of \$300,000. Thus, the inclination of the borrower to obtain mortgage loans just as high as possible, is not unnatural, even though it is dangerous and has led generally to failure, because in the case of the \$500,000 loan, the cash requirements would amount to  $6\frac{1}{2}$  per cent for interest plus  $2\frac{1}{2}$  per cent for reduction of the capital indebtedness, or \$45,000. That proportion to earnings usually is not only too heavy a burden in the initial years, but involves great risk in any later year when, as happens in any industry, a lean year or a period of lean years has to be weathered. The experience of the last few years has seen full proof of this fact.

The consequence is that numerous hotels have been taken over by trustees for the bondholders. Equities of the owners (stockholders) are wiped out in most of these cases. Creditors on open accounts have only slim chances of recouping, and in certain cases it is rather doubtful whether or not 100 per cent of the first mortgage bonds can be recovered. In most cases so far the purchasers of first mortgage bonds have not lost either principal or interest, where bonds were bought from the very high class investment houses, because those investment bankers of high standing and very strong resources, so far, have protected them and are carrying the burden.

However, even these strong institutions naturally have their limitations, and as a consequence they have shut tight, and it is very difficult indeed today to find underwriters for first mortgages even for meritorious hotel projects. That condition, as far as existing hotels are concerned, is to be welcomed, because there is no doubt that in most parts of the country, the industry has been overbuilt. It also has the further advantage that most probably it will lead to sounder financing when the market opens again.

An ideal plan of financing a hotel project

amounting to \$1,000,000 would be:	
Cost of Land	\$200,000
Cost of Construction (including architect contractor's commission, surety bond,	's fees, etc.) 600,000
Interest for Temporary Loan during Contion, 6 per cent on \$600,000	36,000
Furniture and Fixtures Taxes, Other Expenses, etc.	124,000 40,000
Total	\$1,000,000
To be financed in this way:	
Institutional Mortgage Loan (Less: Discount of 3 points and	150,000
expenses)	20,000
Net Proceeds Income Debenture Bonds with	\$430,000
	300,000 30,000
Net Proceeds	270,000
Preferred Stock, 1,000 shares (One share of common stock given as bowith each two shares of preferred sto	
Owner's Investment—Common Stock, 3,000 shares	150,000
Total Proceeds	\$1,000,000

The advantages are obvious. To provide (instead of financing as just outlined) a serial bond mortgage issue, sufficient to obtain proceeds of approximately \$700,000, the total issue, including discount (higher by about 6 to 8 points than in the case of an insurance loan) and interest during construction, the total loan could not be much less than from \$830,000 to \$850,000 thereby increasing the cost of the project. Furthermore, yearly obligatory payments for interest and amortization payments thereon would amount to at least \$75,000, whereas in the case of a combination of an institutional mortgage, and junior financing, only the failure of meeting the interest on this mortgage (name! \$27,000) could result in foreclosure. Usually no, or a very nominal, amortization is required during the life of the insurance loan, and income debenture bonds have as security only the income, so that the danger of a levy against the property is slight indeed. Nevertheless, these debentures should interest the investing public, first because there would be much less danger of non-payment of interest on account of the elimination of amortization on the first mortgage, and secondly because the conversion warrant gives an opportunity of sharing in the ultimate profits in the enterprise in the eventually expected appreciation of the property.

The investment banker usually has a strong aversion against leasehold mortgages. In my opinion, that aversion is not entirely justified. Especially in large metropolitan cities, desirable hotel locations require land so valuable and expensive that sometimes it is almost impossible to purchase it, or if purchased it increases the need for a so much enlarged mortgage, and consequently so much increased capital payments, that we have just that situation against which I have warned in this article. If a lease on such ground can be had on reasonable terms, it means that, in fact, interest only and no amortization is paid.

Financing by land trust certificates means that part of the requirements, which equals the value of the land, is for practical purposes very similar to an arrangement for a lease on the land and a subsequent leasehold mortgage. This form of financing is rather new, used only in a few states to any extent, especially in Ohio.

The architect should realize,-

1. The necessity of a thorough and unbiased preconstruction survey, to arrive at an authoritative estimate of the earnings possibilities of the individual projected hotel, instead of founding calculations of the forecast simply upon average ratios of the industry.

2. The advisability of keeping bonded indebtedness to that low point where even unexpected disappointment in the earnings will not make it impossible to meet obligatory payments.

# PLANNING THE HOTEL FOR MAXIMUM FLEXIBILITY AND UTILITY

BY

#### WILLIAM HULL STANGLE

THE hotel business is essentially an industry; as such it involves the application of the fundamental principles of economics, and calls for their ingenious application by the architect in the design of the hotel. These fundamental principles are founded on experience gained in the operation of hotels and are the factors determined by the natural research of observant operators in the laboratory of the business,—actual experience.

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As an industrialist, the operator today buys his room space at a price and merchandises it at a profit. Likewise he purchases raw food, puts it in storage, refines it in the kitchen (for cooking is an art of refining) and merchandises the resultant product in the dining room, coffee shop, grill and other places. The steward is the purchasing agent, the chef the refiner, and the waiter the salesman. The menu is an advertising medium, and the food is sold "ready-made" (table d'hote) or "made-to-order" (a la carte). Shop or store space is sold at a relatively high rate of profit to offset the land-carrying charges, and public spaces are required to insure a maximum return. To do justice to the industry the operator must have a properly designed and well balanced house. The design must meet the demands for maximum flexibility and utility, since otherwise the house is overburdened, and a reduction in profits will result. Proper equipment is of paramount importance. Of the equipment, the elevators and kitchen are the backbone of the hotel. The elevators serve the guest rooms, and the kitchen serves the eating places. The best parti will result when the building is designed around the elevators and the kitchen.

**Profit.** As the hotel must make a profit, it is necessary that the purchase price of the building be in proportion to the possible income. A survey should be made of competing hotels and of the possible patronage, from which the room rates for the proposed hotel should be established. This becomes the first economic factor in the design of the hotel. A cubic foot of space in a given locality will cost a certain unit price. Knowing the possible room rate, an experienced hotel specialist can determine the size of the room and the type of equipment most suitable for the patronage anticipated. The type or character of the house will predetermine the public space requirements.

Standard Requirements. Since there are certain fundamental principles involved in the economic equation, it is logical that standardization be a factor in the design. Several chain operators have found it to their advantage to standard-

ize their requirements. The best of these requirements are used as a basis in this discussion. In most instances the architect, in designing a hotel, looks for a satisfactory typical floor plan. Having achieved this, he designs the rest of the building to suit this typical plan. Let us therefore look into the designing of the guest rooms.

Guest Rooms. The majority of hotels today are high grade commercial houses that a few years ago would have been called de luxe. Again the advanced requirements of the patron have become somewhat standardized, and one must meet this demand. For purposes of reference, typical guest rooms will be designed as C, B, A, AA.

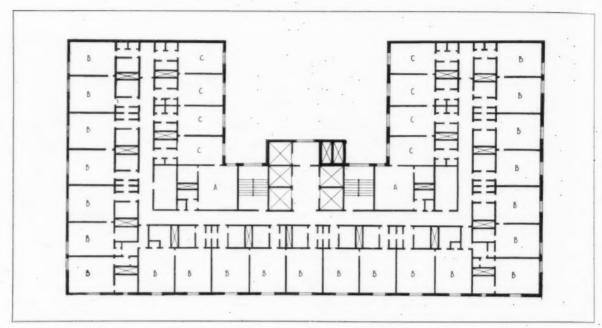
The C room is laid out 9 feet wide and from 13 to 14 feet long, being of ample size for all furniture and space for the guest. A double or three-quarter bed can be used, allowing flexibility in that double occupancy may be had when required, although it is essentially a "single" room.

The B room is 11 feet, 3 inches wide and from 13 to 14 feet long. This will accommodate a double or twin beds with the usual required dresser, side chair, overstuffed chair, night stand and fixtures. A combination dresser and writing desk is used by several prominent operators, saving as it does in floor space and furnishing cost.

The A room is 12 feet, 6 inches wide and from 13 to 14 feet long. This is typical of the B room excepting in the greater width. It is usually furnished slightly more elaborately, and is best arranged as a corner room or as a parlor en suite with a B or a C room.

The AA room is from 12 feet, 6 inches to 14 feet in width and from 16 to 20 feet in depth. This is in reality a de luxe room as is incorporated in the better houses where a substantial resident guest business is anticipated. These rooms are best equipped when closet beds are used, providing a parlor or living room by day and a bedroom at night. This flexibility results in securing a higher rate and resultant increase in profit. The writer predicts that some operator with real vision and a pioneering spirit will some day erect a de luxe hostelry with this type of guest room. It is logical, practical and more refined than the usual "bedroom" guest chamber.

All guest rooms should have telephones connecting through the house switchboard. Where resident guests are anticipated, additional provision should be made for private telephones. Radio in every room is becoming a part of the service to the guest. The writer has recently designed and recommended an elaborate system for



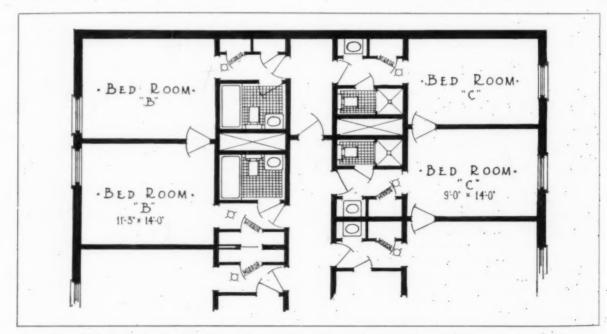
Typical Floor Plan of Hotel Having 32 Rooms per Floor

a southwestern hotel providing at least two radio 'rooms should have tub baths and shower heads. programs,-a Victor record program, and house music,-in every room. This particular city has little theatrical, motion picture, or musical entertainment, and the guest must be entertained to keep him from going to the next livelier town.

Baths. Americans are "bath-minded," and any modern house should have a bath in every room if it is to have distinction and meet the demands of the present patronage. AA rooms should have combination tubs and showers. A

B rooms should have at least tub baths, and C rooms at least shower stalls. A few C rooms may, if en suite, have a compartment for lavatory and water closet.

A survey, of course, would indicate the proportion of rooms of the various sizes to incorporate. in the design of the hotel. An average for a high grade commercial house would be from 10 to 20 per cent A rooms, 40 to 60 per cent B rooms, and 20 to 30 per cent C rooms. In most



Portion of Plan Showing Flexibility Through Connections. Typical "B" and "C" Rooms and Baths

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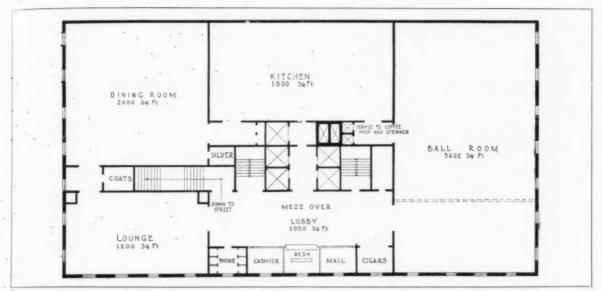
or-

ate

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B

ost



Main Floor (above Stores) of Hotel Shown on Opposcite Page. Excellent Control and Room Relationships for Flexibility

instances, the B rooms are the best sellers and provide maximum flexibility and utility at a relatively lower initial cost. There is a growing demand for shower baths, particularly by men travelers and the younger set of women. There should be a goodly proportion of rooms providing shower facilities. Considerable importance should be given to the ventilation and heating of the bathroom, especially where the bath is inside. Air changes of from two to five minutes are necessary. Warmer climates and seaboard hostelries need greater ventilation.

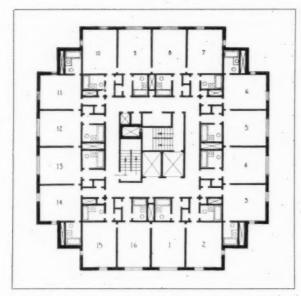
Room Facilities. A frequent fault of the higher type of hotel is inadequate closet space. This should certainly be provided. The tourist business and growing convention traffic demand maximum flexibility and utility. Communication between rooms to provide accommodations for complete families and groups of guests is becoming more essential. The accompanying sketches will show several means by which this may be accomplished. All rooms today should have full-length mirrors in the door panels of the closets. The arrangement shown has proved very Running or circulating ice water is practical. now a necessity and not a luxury. Every guest expects it and resents the tipping nuisance of bell boy ice water service. Medicine cabinets are to be found in every good bathroom, which is also provided with towel racks, hot water bottle hooks, towel hooks, bottle openers, integral electric lights, and convenience outlets. The traveler today is bent on an elaborate toilet before the day's work or journey or before retiring. Several modern houses catering to tourists and women guests have seen fit to abandon the old ideas and are providing

facilities for washing, drying and ironing lingerie, hosiery and gloves, handkerchiefs and small pieces.

Floor Service. Interior corridors need ventilation and are too often stuffy and poorly ventilated. All guest room floors should have adequate linen storage space, maids' closets, slop sinks, and general storage and fire protection equipment spaces. Where room service is a feature, there has been a tendency to waste space by having individual pantries. This is unnecessary, and all such service should be handled directly from the kitchen by service elevators and special service equipment.

Waste Space. Parlor suites and the de luxe AA rooms depend, in the design, upon the findings of the survey. The architect should always bear in mind the facts that rooms must be rented, and that every vacant room means a definite loss. There is too much tendency toward designing monumental structures with waste space and inflexible operation instead of common-sense, practical planning. And, too, the unfortunate architect is often controlled by the whims, ego and extravagance of an over-optimistic operator or owner who insists on having monumental evidence of his greatness while he ignores the weakness of his pocketbook and the relative loss in The community-financed hotel future income. also invariably becomes involved in financial difficulties, because the citizen committee insists on burdening the project with oversized dining rooms, lobbies and so-called "civic rooms," the latter being costly and used less than other spaces.

Maid Service. Referring again to guest room space, it is well for the designer to remember the "rule of eight." The average maid can handle



Ty, 2al Floor Plan of an Ideal 100-Room Hotel, 6 Floors and Pent House. Sixteen Rooms Can be Cared for by One Maid

16 or 17 rooms; 16, 32, 48, or the like rooms per floor, is ideal. On the other hand, 24, 40, or the like is satisfactory, as one additional maid can handle eight additional rooms per floor for two floors. Reference is made to the accompanying sketches for typical plans of a practical nature.

Sample Rooms. In commercial houses, sample rooms should be provided, but in de luxe houses there is strong opposition to this practice. In face, some de luxe operators will not tolerate them, while others with an eye to business, cover up their practice by referring to these rooms as "salons," "galleries," etc. Accompanying sketches show ideal arrangements for the average house.

Public Space. Next to the guest rooms, the public space is most important, for if oversized it can, and frequently does, ruin the chances for profit. The entrance should always be designed so that it naturally invites the guest to enter the hotel. It should be a "one-man control" entrance, and double entrances are taboo. A double entrance should be provided only if the two connect before the stairway or entry to the business lobby is reached. Revolving doors or double vestibule doors should always be incorporated to prevent blasts of cold air from the outside. A hotel entrance is a busy place, and it can become a nuisance if not properly designed.

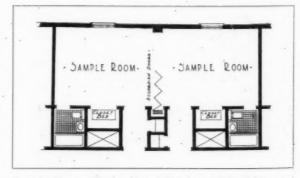
Old time hotels provided spacious lobbies, but that day is passing. The smaller business-like lobby reduces the number of "lounge lizards" and non-paying guests. In its stead a comfortable lounge adjacent to the lobby is coming into play, for it provides a more dignified atmosphere for the increasing number of women travelers and the better class of men guests. It affords the opportunity of providing a homelike atmosphere.

Women's lounges, smoking rooms, "powder puffs" or cosmetic rooms and toilets are now parts of the public area allotted to the women traveler. The toilets can be self-sustaining or even profit makers by using coin locks or arranging concessions to attendants. The men's wash room and toilet is an old time adjunct and affords an income to the house, usually through concessions, or in a smaller house by coin locks.

One of the newest features incorporated in an eastern de luxe house is a "meditation" room. Here is provided a beautiful small room, Gothic, in which any guest of the house can express his or her devotion to God, be his creed what it may,

or her devotion to God, be his creed what it may, in silent meditation and in an appropriate atmosphere. Nurseries for the children of guests will be found in a few de luxe hostelries and have in general been profit-makers through a nominal fee or concession arrangement. Dog kennels have also been profitable in several urban houses, as there is a veterinary in charge, and a special cuisine for dogs is available at fashionable prices.

The dining room, coffee shop, banquet hall and other food-serving spaces present a difficult problem for the architect. It is the writer's opinion that no architect should take the responsibility of designating the space required for this business. Only an exhaustive survey can predict the food business and then only on a comparative basis with the conditions in the community and kindred communities well in mind. However, for the average house, there is a tendency to reduce the dining room space and increase the coffee shop area. This is indicative of the growing "grand American rush." One authoritative operator averages one seat in the dining room for every two guest rooms in the hotel and one seat in the coffee shop for every guest room in the house. The writer particularly warns the lay hotel architect not to definitely follow such a rule of thumb method. Put it up to the operator, and endeavor to get a survey made to secure the best results.



Sample Rooms Designed for Maximum Flexibility and Multi-use, 44-inch Doors to Admit Trunks

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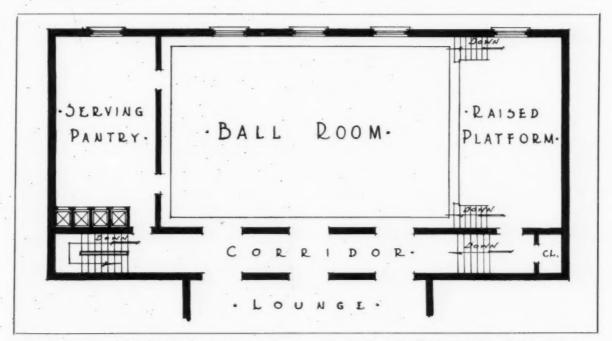
The banquet hall, ball room and civic room are usually one and the same. Local conditions alone can predict the size required. The writer recently recommended a combination room which is shown in the accompanying sketches. This room can be used as a dining room, banquet hall, ball room, auditorium; grill with dance floor, and for civic organization meetings and conventions. It is not intended as a compromise, but in the particular instance it meets the demands of a middle-sized city with varied hustling activities. Another sketch shows a satisfactory arrangement for a kitchen serving a dining room, ball room and a coffee shop below. In this case the ball room is used for many small affairs of high social caliber, and the coffee shop is of less importance.

Kitchen. Too much cannot be said about the kitchen, and volumes have been written about it. A real kitchen expert should always be consulted. Pantries often solve problems of food handling. Storage of food, too, is a broad and varied subject, too lengthy for discussion in this article. There is one thing for every architect to remember; whenever possible design your building so that food will travel in a horizontal plane, and reduce the vertical travel to minimum if you cannot eliminate it entirely. In keeping with the modern trend of discussing Prohibition, it may be in order to point out the resultant change in hotel planning since the elimination of the bar and cafe. In days gone by the bar made a huge profit and helped carry the land charges. Today these charges must be met in some other way.

Shops and Concessions. Several operators require that the design shall provide sufficient store or shop area to return at a fair rate of rental at least 10 per cent of the cost of the land, or in case of a leasehold enough to carry the lease and pay taxes and the like. In some instances this is impossible, wherein the operator must adjust his rates to meet the difference. In one case the writer succeeded, because of peculiar local conditions, in obtaining 20 per cent of the land value as the annual gross store rental. Other concessions such as valet, florist, barber shop, beauty parlor, telephones, telegraphs, porters, coat checking privileges and the like depend on conditions.

Stores and concessions should be made as flexible as possible to provide for facility in arranging the space to suit the tenants. A satisfactory solution in obtaining bids and letting contracts is to put in an allowance for partitions and the like and to adjust this as the work is completed. There should be coöperation between the renting agent and the architect.

The basement of a hotel is a factory and storage area. Here are housed all the mechanical equipment, such as the heating and power plant, fuel storage, laundry, incinerator, central vacuum cleaning system, refrigeration plant, steward's storage, air conditioning and ventilation apparatus, helps' locker rooms, helps' food space and kindred areas. Frequently space is provided for storage for the shops or stores. One eastern hotel has made a good profit with fur storage facilities in connection with a high class furrier shop.



Ball Room Planned for Multi-use. Projection Booth and Radio Control are Placed Over Serving Pantry Microphone Pick-up and Accessories are at the Raised Platform

# FEATURES THAT MAKE HOTELS PROFITABLE

J. O. DAHL

OTELS exist primarily for the sale of food A building constructed for and shelter. this purpose is seldom flexible enough to serve other commercial needs, and therefore the architect is faced with a situation that is unique. He must put into the structure that which will please the public at present and also 15 years hence. Obsolescence sets in early. Many hotels not over 10 years old are obsolete today because structurally they cannot be remodeled to meet modern demands. Within a mile of my office there is an example of beautiful hotel architecture that costs the operator \$32,000 a year due to the loss of ground floor rentals. It is impossible to build in stores. Not a block away there is a successful hotel that runs its labor costs up \$3,200 a year because the kitchens were not made large enough to give economical room service.

Next to planning a hotel that can be operated economically, is the necessity for building into it features that draw patronage. In a new hotel the advertising appropriation usually totals from 2 to 5 per cent of the first year's estimated gross revenue. It may, and often does, cost from a dollar to a dollar and a half to get each new patron. It is obvious, then, that the "repeat"

guest is the patron who assures a profit. Therefore, the hotel needs features that have advertising value to bring in new guests and to so please its patrons that they will return frequently.

The list which is a part of this article is based on interviews and letters from hotel managers. For two years one of my stock questions has been, "If you were building a new hotel, what would it contain?" And in several hundred new modern hotels I have followed the success or failure of features listed. Many factors govern the value of the data. Transient hotels that sell rooms at \$1 to \$2 a day, would be over-equipped if each room had a full-length mirror, colored awnings, a room clock and a tailored closet. But another hotel a few blocks distant might succeed because of having such features.

Builders and promoters often display a strange lack of knowledge as to what kind of a hotel should be built. All too often a practical operator is not called in until the house is ready to open. It is under such circumstances that an architect must guard his future standing. The list shows the features advocated by managers of hotels. But it cannot, in a limited amount of space, show where and when they are advisable or essential.



An Efficient Tray Lift Speeds the Room Service



Well Equipped Closets with Convenient Mirrors

This can be determined only after a study of location, potential clientele, competition, price range, and service demands.

Structurally, managers do not look forward to many changes over those recently made. Soundproofing is essential to the future success of hotels that now furnish entertainment. The manager who can offer "noiseless hospitality" is assured of a high house count. If the "sun-tan" vogue continues, guests will pay extra for the privilege of having window glass that admits ultra-violet rays. Outside baths, casement windows and a sprinkler equipment are sales features of peculiar value to different types of hotels, but weather strips and central cleaning cut costs.

Hotel operators agree that the greatest advance in providing hospitality features will be along electrical lines. Television is around the corner. Radio in every room is here to stay; and the modern bathroom looks like a cross between a gymnasium and a hospital. But it is not at all unlikely that future hotels must provide facilities for exercises, violet-ray machines and other health equipment. "American life centers around the bathroom," said a famous French visitor upon his return to France. What he said in jest is rapidly becoming the truth. A beautiful bath with modern facilities for luxury and comfort is one of the best sales features. L. M. Boomer, president of the new Waldorf-Astoria Corporation, realizes this. The baths in the apartment suites of his new hotel will contain equipment found now only in the homes of unusually wealthy people. Women especially appreciate beautiful bathrooms, and they comprise at least 25 per cent of the patronage in American hotels.

Mechanical ventilation is today one of the best sales features in a modern hotel. In five years it will be impossible for a hotel to compete unless it has this equipment. This will also be true of temperature control, self-leveling elevators, and in apartment and residence hotels, incinerator equipment. The latter is modern and economical in operation,

Guests in the modern hotel expect speedy service. Therefore, it is essential to provide means for instant communication and transportation. Also they want doors that can be unlocked easily, rooms that can be found quickly unaided, parking space or a garage for their cars, overnight pressing service, one-day laundry service, bath tubs that fill and drain quickly, mixing faucets, good lighting, and the services of such departments or concessions as the barber shop, beauty parlor, soda fountain, drug store and library. Determining what they will want five years from now is the great problem of those who design and build hotels today. If such features are not

found on the list it is because even the vivid imagination of many managers has failed to visualize a more modern and luxurious hotel than one including a composite of all the listed features and facilities.

# COMPARATIVE VALUES OF

CONSTRUCTION AND EQUIPMENT FEA-TURES THAT MAKE FOR A POPULAR AND PROFITABLE MODERN HOTEL

E—Excellent. G—Good.	2				-
	(manual)	Ħ		e e	Fransient Hotel
	ent	tial	otel	Hot	nt I
X-Fair.	TT	den	Jub Hotel	T.	Bie
O—Of little value.	Apartment Hotel	Residential Hotel	Club	Resort Hotel	Trat
I. Structural Features					
Soundproof construction	Е	E	E	G	E
Central cleaning	E	E	E	X	E
Ultra-violet-ray glass	E	E	E	E	G
Outside baths	E	E	O	G	X
Weather strips	E	E	E	O-1	E
Casement windows	E	E	E	E	E
Double connecting doors	O	O	O	E	E
Sprinkler system	O	0	O	E	O
Laundry chutes	E	E	E	O	E
Rubbish chutes	E	E	E	X	E
Beautiful entrance	E	E	E	X	E
Wood-burning fireplaces	E	E	E	E	O
II. Mechanical Features					
	**		***		
Temperature control	E	E	E	E	E
Self-leveling elevators	E	E	E	O	E
Incinerator	E	E	E	E	E
Circulating ice water Mechanical ventilation	E	E	E	E	E
	E	E	E	0	E
Air conditioning	E	E	E	O	E
Large drains in baths	E	E	E	E	E
Rustless hot water lines	E	E	E	E	E
Water softener	E	E	E	E	E-19
The content of the co	13	2		1	A
III. Bathroom Features					
Silent flush toilets	E	E	E	E	E
Automatic shower mixers	E	E	E	E	E
Color in bathrooms	E	E	E	X	G
Mixing faucets	E	E	E	E	E
Built-in bathroom scales	E	E	E	E	Y.
Steel medicine cabinets	E	E	E	E	E
Enclosed showers	E	E	E	X	E
Tub and shower combination	E	E	E	E	E
Heated bathrooms (all year)	E	E	E	0	X
Hot water bag hooks	E	E	0	E	E
Bathroom clothes hooks	E	E	E	E	E
Built-in bottle openers	EX	X	0	E	E
Chairs over toilet seats	1.	1	U	U	O

-		-				VII. Departments or Concession
Key  E—Excellent.  G—Good.  X—Fair.  O—Of little value.		Residential Hotel			otel	Swimming pool E
E—Excellent.		=	7	otel	Ħ	Roof garden E Safety deposit boxes E
G—Good.		n	To.	Ĭ	ent	Garage E
X—Fair.	3	side	Club Hotel	Resort Hotel	Transient Hotel	Valet department E
O—Of little value.		Re	อี	Re	T	Soda fountainX
						Quick service dining rooms. X
IV. Communication Facilities						Ground floor stores X
Mail chute E		E	E	O		. Professional offices E
Convenient telephone outlets E		E ·	E	E	E	VIII. General Features
Servicing doors E		E	E	X .	E	· ·
Chauffeur signals E		E	X.	0	X	Provision for pets E
Public telephones E		E	E	X	E	Parking space
Intercommunicating system E		E	X	X	E	Room service facilities E
Tubes, pneumatic E		E	E	0	E	Provision for signs X Porte cochere E
Teletype or telautograph E		E	E	E	E	Forte cochere E
						IX. Electrical Features
V. Room Equipment						Numerous electrical outlets. E
Friction door hinges E		E	E	E	E	Radio outlets E
Modern door locks above knobs E		E	E	E	E	Floodlights C
Luminous door numbers E		E	E	E	E	Outlets for violet-ray
Radiator enclosures E		E	E	E	E .	machines E
Ventilated doors E	,	E	E	E	E	Shaving lights E
Colored awnings E		E	E	E	E	Closet lights E
Rolled screens E		E	E	E	E	Automatic refrigeration I
Cedar closets E		E	E	0	O	Auxiliary lighting I
Full-length mirrors E		E	E	E	E	Signal system (maids') I
Closet beds E		E	E	O	O-6	
Wall safes E		E	E	O	O	REFERE
Built-in features E		E	E	0	X	1. Excellent for winter resor
Room clocks E		E	0	0	E	2. Excellent for resorts that for commercial hotels that
Door bolt switches X		X	E	X	E	3. Expense is seldom justifie
Tailored closets E		E	E	E	X-16	500 rooms.
Carpet nailing strips O		0	E	0	E	4. Almost essential to have s
Drapery hardware E		E	Y.	X	X-18	hotel of over 500 rooms in 5. Excellent for clubs, such
						6. Very good for suites, samp
VI. Special Rooms						<ol><li>Sometimes profitable in ho size. Generally profitable i</li></ol>
Club rooms	)	X	E	X	E	of over 500 rooms, it usua
Convention halls O		0	X	X	E	8. Depending on location. He
Gymnasium E	-3	E-3	E-3	E-3	E-3	can support a barber shop
House laundry E			X ·	X	E-7	1,000-room house there are make a beauty shop profit
Barber shop N		X	X	E	E-8	9. Seldom profitable for cate
Beauty parlor E		E	X	E-8	E-8	is located in a large city.
First aid quarters X		X	X	X	X-4	10. Only for large hotels or sideal of family business.
Children's play room E		E	0 .	E	E-10	11. In hotels of under 200 room
Rooms for guests' servants E		E	0	E	0	connection with the linen re
Lockers for guests E		E	E	$0^{-i}$	E	ment when in hotels of over
Specialty shops E		E.	E	E	G	12. Only in hotels of over 20 street location is possible a
Private dining rooms N		X	E	O	E	13. For hotels of over 200 roo
Banquet hall O		0	E	O	E	14. An excellent feature in lar
Wrap checking rooms	-9	X-9	E	O	E	muters stay downtown for
Public dressing rooms O	)	0	X	0	E-14	<ol> <li>Provide for pay locks, dispensers, shoe shine depart</li> </ol>
Sample rooms 0		O	0	O	E	first class ventilation.
Public toilets C	)	0	X	0	E-15	16. Special drawers and co

X E

X ·X

E E X E

E

E-17

E

Employes' locker rooms.....

Apartment suites..... E

Storage rooms..... E

Paper baling room..... E Maids' floor closets.....

#### ons

Swimming pool	E-3	E-3	E-3	E-3	E-3
Roof garden	E	E	E	0	E-9.
Safety deposit boxes	E	E	E	E	E
Garage	E	E	X	E	E
Valet department	E-11	E-11	E-11	E-11	E-11
Soda fountain	X	X	E-12	E-12	E-12
Quick service dining rooms.	X	X	E	E	E ·
Ground floor stores	X	X	E	0	E
Professional offices	E	E	E	0	E

Provision for pets	E	E	0	E	E
Parking space	E	E	X	E	E
Room service facilities		E	0-5	X	E-13
Provision for signs	X	X	X	X	E
Porte cochere		E	E	E	E

IX. Electrical Features				4		
Numerous electrical outlets.	E.	E	E.	E	E	
Radio outlets	E	E	E	E	E	
Floodlights	0 .	O	0	O	E	
Outlets for violet-ray						
machines	E-	E	E	O	0	
Shaving lights	E.	E	E	E	E	
Closet lights	E	E	E	E	E	
Automatic refrigeration		E	E	E.	E	
Auxiliary lighting	E	E	E	·E.	E	
Signal system (maids')	E	E	E	E	F	

## NCE

- cater to family trade and
- at also cater to residents. ed in a hotel of less than
- pace for this purpose in a size.
- as size.

  as the Union League, etc.
  ple rooms and parlors.

  otels of under 100 rooms in
  in larger houses. In hotels
  ally pays to do guest work.

  otels of 500 rooms or over
  from guest patronage. In a
  convert homeoner account.
- enough women patrons to
- ring facilities unless house
- maller houses with a great
- ms in size when handled in oom. As a separate departer 200 rooms in size.
  00 rooms in size unless a and the traffic heavy.

- oms in size. rge cities where many com-dinners, theater, etc.
- isinfecting equipment, soap artment, lavatories, mirrors,
- and containers for men's and women's clothing.
- 17. Growing demand for these in metropolitan transient hotels.
- 18. Built-in features prevent breakage due to guests' carelessness in putting up own hangers.19. If water tests show need for it.

## MODERNIZING EXISTING HOTELS

C. STANLEY TAYLOR

HERE has always been competition between I new and old hotels, but until less than a decade ago, this competition seemed to take care of itself, while the attention of the hotel world was centered on a tremendous expansion of hotel facilities that has resulted in the overproduction of room space in many centers. It is hardly necessary to look into the causes which fostered the active promotion of hotels; undoubtedly the development of community-financed hotels has been a potent factor, but it does not stand alone as the only cause of recent hotel construction activity. Today the situation has so far developed that owners and managers of existing hotels must very seriously consider methods of meeting the competition of modern commercial and residential hotels in order to keep red ink figures from their

Fortunately, the modernization of existing hotels is frequently both practical and profitable. It is a type of work in which architectural counsel is just as important as in the creation of new residential structures. This field of hotel design offers a potentially enormous practice for those architects who are prepared to study the problems involved and to apply all of the ingenuity and skill at their command to achieve successful results with structures that have fallen behind the times.

Economics of Modernization. The owner of an existing hotel that is 10, 15, or even 50 years old has almost as many advantages as handicaps in competition for profitable business. When a new hotel is constructed, the site usually costs the owner the full prevailing market price for high grade centrally located realty. In the larger cities, hotel sites command prices which are almost the equal of those paid for the development of the

most important commercial buildings. In smaller communities, where hotels are usually situated within a block or two of the center and yet outside of the center of maximum realty values, the purchase of a site does not often represent such a large part of the total investment, although it must always be considered an important factor. The owner of an existing hotel frequently possesses a site that cost him far less than its present worth,—and that is naturally far less than the investment which a new competing hotel would have to make for a plot of equal desirability.

The construction of a new hotel also involves paying present-day prices for labor and materials which would be approximately double the prices paid for pre-war construction. Furthermore, the existing hotel has been writing off part of its valuation through reserves for depreciation and obsolescence. Thus when the old hotel starts out to compete again with its newer neighbors, it has the advantage of representing a far smaller capital investment upon which it must return dividends. The amount of remodeling and modernization work that must be undertaken to restore the old hotel to popular favor varies, of course, with the condition of the structure and the nature of the competition which it must meet. Nevertheless, it is usually possible to avoid expensive structural changes and to make extensive use of existing features so that the new investment required to catch up with the times is less than the investment necessary in a new hotel to provide the same facilities.

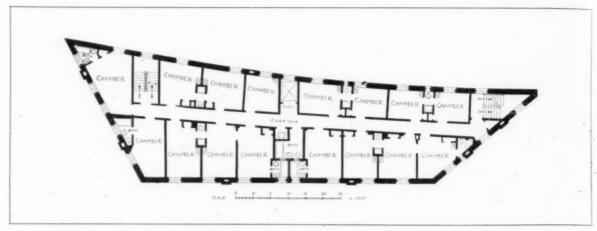
It should be remembered, too, that the old hotel does not need to command the same class of trade as a costly new structure, nor does it have to charge the same scale of prices in order to make a satisfactory profit. The investment is less; the





A Commercial Building Modernized into a Hotel at Worcester, Mass.

Leland Hubbell Lyon, Architect



Plan of Worcester Hotel Shown on Preceding Page Leland Hubbell Lyon, Architect

cost of the modernization is less than the cost of new construction; and the cost of financing a remodeling operation is usually very much less than the cost of raising funds for a new building. Operating costs are about the same per room in either a new or a modernized old hotel, but with overhead and fixed charges so very much lower, the gross income from room returns and concessions need not be very high in order to show a profit of satisfactory size.

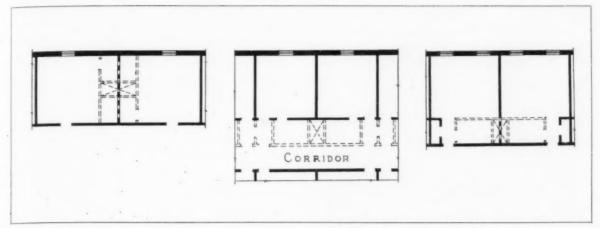
The financing of remodeling operations is not as difficult as might appear on first thought. Paradoxically, some hotels that are almost hopelessly in debt to mortgagors and creditors can be refinanced more easily than a hotel that is just beginning to show losses. In such cases, the creditors, realizing that a failure of the hotel would return them little or nothing for every dollar owed them, and appreciating that once the hotel were modernized it stood a fair chance of recovering its earning power, are often willing to provide additional capital for a well planned modernizing operation in order to protect the money which is

already tied up. If a hotel does not appear so hopelessly set, it nevertheless can present to bankers and often to individual investors such a clear analysis of the increased earning power of the hotel after it has been modernized as to secure the necessary financial support to undertake the changes.

Reasons for Remodeling. Remodeling and modernization should not be left until the hotel has declined to the point where its earning power has vanished. The intelligent hotel manager in recent years has realized the importance of making changes from time to time to keep in step with newer competition. The hotel that has been successful for many years is generally in greater danger of becoming obsolete than one that has had to fight for its existence. There is need for overcoming the inertia of success. The Waldorf-Astoria in New York is perhaps the most famous example, for this old timer retained much of its mid-Victorian character through more than three decades of competition from newer hostelries. To be sure, it constantly renewed its mechanical



Stores and Entrance of Aurora Hotel, Worcester, Mass., Before Modernizing



Plans Showing Three Methods of Providing Baths Under Various Conditions in Old Hotels

equipment, put in modern plumbing and lighting systems and up-to-date elevators, but finally the day came when changing conditions forced its demolition.

Successful hotels of this kind often develop a clientele of regular patrons who year after year reside in the hotel as permanent guests, or come back with such frequent regularity, because of their love for the old place, that the manager finds no need for cultivating new friends. Such a condition is interestingly illustrated by a small hotel of less than 200 rooms at Worcester, Mass. The old Aurora Hotel has enjoyed a patronage of well-to-do people who have lived within its walls. permanently or intermittently, for many years. Recently the manager began to note that some of his old patrons were dying off. The hotel still houses several octogenarians and one who is approaching the century mark. The younger people of the city rarely came to his hotel, because it had acquired a name for sedateness and old fashioned characteristics that offered them no attractions. What would happen when more of his old

customers passed away? It was time to plan constructively for building up a new and younger clientele. The result of these thoughts was to engage an architect to completely remodel the lower floors of the building without unnecessarily disturbing the rooms on the upper floors favored by the present clientele. A handsomely decorated lobby, modern dining rooms and food service facilities, a coffee shop and space for profitable concessions were introduced in the ground floor and a modern ballroom where the younger generation could dance, and where local organizations and civic societies could hold meetings in attractive environment was created in the basement. The exterior was but little changed except that the entrance was made more attractive through skillful design. As the upper floors were temporarily vacated, they were completely redecorated and refurnished and the mechanical equipment brought up to date. Through this process of conversion the manager has wisely paved the way for attracting new patronage to replace the old that is literally dying out.



Stores and Entrance of Aurora Hotel, in Process of Modernization Leland Hubbell Lyon, Architect



Addition to Hotel Not Originally Designed for Additions. Property Acquired Later. Penn Harris Hotel, Harrisburg

W. L. Stoddart, Architect

Types of Modernization Work. While the function of all modernization work is to increase net incomes, the manner in which this may be accomplished varies in almost every operation. It is governed by conditions and by the nature of the competition which the old hotel is facing.

Sub-rentals. So many old time hotels have enormous lobbies and extensive dining rooms, lounges and other public space far beyond the needs of its guests that one of the most common methods of increasing net income is the conversion of non-productive space into income-producing space through the introduction of stores, shops, and various types of concessions. The familiar small town hotel, with its plate glass windows, brass rails and overstuffed leather lounge chairs occupying valuable street frontage, is adopting the modern city hotel practice of putting the lobby into the back part of the building. or on the second floor and using its street frontage for small stores and shops. These old hotels were likely to employ excessively high ceilings for their public rooms. Sometimes there is sufficient room to introduce a complete additional floor by cutting in half horizontally the space formerly devoted to public rooms. Within these lobbies there is frequent opportunity for introducing news and tobacco stands, florist shops, barber and beauty shops, telegraph and telephone offices, and even brokerage and real estate office space with a minimum of structural alterations. Ball rooms

and private dining rooms that do not command sufficient patronage to warrant their retention for their original purposes, may often be subdivided into guest rooms or sample rooms, or even sub-let for commercial office space. This method of introducing sub-rentals is the first problem of the architect to consider, because the returns secured are immediate and investment required is comparatively small.

Restoring Prestige. Another type of modernization work is largely centered around architectural and decorative improvements to public space and guest rooms that have merely become obsolete in style. New guests are very sensitive to the first impressions which they receive of any hotel. Remodeling the exterior facades, rearranging and redecorating lobbies and public space, and refinishing guest rooms in the style adopted by newer hotels will often give to the old structure an air of progressiveness and quality which are first aids in restoring it to favor and prestige with the traveling as well as the local public.

Modernizing Guest Rooms. Undoubtedly the. most important changes, from the guest's point of view, are those which are made in the guest rooms. Modern hotel practice has established some well defined standards of accommodation. A comparison of these standards to the facilities offered in the existing hotel will quickly enable the architect and the hotel manager to discern the nature of the changes which must take place. Guest bathrooms are judged even more critically than are the guest rooms themselves, for perhaps the greatest improvements in hotel accommodations have taken place in these units during the last decade or two. Old fashioned hotel guest rooms are usually much larger than those offered by modern structures. The traveling public does not seem to resent seriously this cramping of temporary living quarters. In consequence, it is not usually a difficult matter to introduce bathrooms where they were lacking before by taking part of the space from each guest room, or by removing some of the partition walls between adjoining rooms and reconstructing three rooms where two existed before, or five rooms in place of four. Typical methods of introducing bathrooms are shown in the accompanying chart.

It is hardly necessary to describe in detail the physical changes to make or to re-create attractive guest rooms out of those so commonly found in old hotels. When changes are undertaken the aim is to secure accommodations which closely resemble the guest rooms found in modern hotels.

Modernizing Mechanical Equipment. One of the chief contrasts between old time hostelries and those of a very recent date is found in the character of the mechanical equipment, such as elevators, heating systems, lighting, plumbing, re-

frigerated drinking water, and telephone service. The modernization of heating plants opens up a number of very interesting opportunities. Old fashioned hot air systems that are sometimes still found in small tourist and resort hotels or inns, may often be brought up to date by installing new furnaces fired by coal, oil or gas with electric blowers to force air uniformly to all rooms. The addition of humidifying apparatus to this equipment and the introduction of check dampers to control the distribution of air as needed will often put the old heating system into very satisfactory condition,-even making it superior to steam or hot water installations that would be vastly more expensive. Old steam installations sometimes may be transformed to modern vapor vacuum systems, if the hidden distribution lines are sufficiently tight, by the installation of the proper types of valves, vacuum pumps and other elements, without any material change in the boiler or the piping layout. Much can often be done to improve heating service and reduce fuel costs by installing a modern boiler in place of one that is either worn out or of low efficiency. Ugly radiators may be covered with enclosures, or they may be replaced by modern types.

Old style elevators reveal their deficiencies very quickly to the sophisticated guest. Their replacement with modern equipment in the same shafts is frequently possible if the structure of the buildings will carry the load of modern elevators and if the shafts are in such condition that new guides and new doors may be installed without extensive alterations. Frequently elevator service may be increased to meet modern standards by such changes in equipment, or by taking a part of the waste space that is frequently found in old hotels devoted to broad staircases, remodeling or relocating the latter to provide for one

or two additional elevator shafts.

The modernization of lighting systems can be accomplished at relatively low cost while other changes are taking place, by adding more outlets to switches, and installing convenience plugs and lighting fixtures. If the old system were run in rigid conduit, the necessary increase in capacity merely involves the replacement of light conductors with others of heavier size. New feeder lines may be run through elevator shafts or through vertical lines of closets from which extensions can be made by under-plaster construction.

Modernization of plumbing systems is not so easy of accomplishment, unless new bathrooms are installed in more or less vertical columns, one above the other on each floor. The structural changes necessary to provide additional baths and toilets are sufficiently drastic to permit the introduction of new soil and water lines. The replace-



Building Designed and Constructed for Future Addition. Robert E. Lee Hotel, Winston-Salem. N. C.

W. L. Stoddart, Architect

ment of old pipes feeding existing baths is more difficult, but the recent introduction of flexible copper tubing, especially adapted to remodeling work, will frequently make such changes possible at much lower costs than formerly. The improvement of telephone service and even the introduction of radio outlets in existing hotels is readily accomplished in much the same manner as the

extension of lighting outlets. Modernizing Food Service Facilities. The food service division of a hotel deserves special attention not only because the guests react immediately to inadequate service or unattractive environment, but also because modern food service equipment has developed so far in recent years that its employment will often save labor costs in the preparation and serving of food. Kitchens, pantries, store rooms, refrigerators, dish washing equipment, and even the linen and tableware should be examined with a view to their replacement if necessary. Old fashioned dining rooms may usually be remodeled and redecorated at no great expense to compete successfully with the multitude of tea rooms, restaurants, cafeterias and coffee shops that have sprung up in the neighborhood since the old hotel was built. Store space that has not rented well, or waste basement area can frequently be converted into cafeterias and coffee shops, while excessively large public dining rooms may be reduced in size during the remodeling process, and the area converted to in-.come-producing space.

## CHECK LIST OF ITEMS TO BE CONSIDERED IN THE MODERNIZATION OF HOTELS

#### 1. Preliminary Economic Studies

(a) Examine balance sheet and operating statements for last year or more to determine present investment and present return thereon; also examine monthly room occupancies over

a period of years.

(b) Make careful survey of entire community to determine character of competition, potential business, proper rental scale after modernization, need for additional guest room space, demand for store concessions,

(c) Consider value of present hotel site with reference to its continued desirability for hotel purposes. Would it be better to sell, or

remodel for commercial purposes?

(d) Estimate the approximate investment that can be made in modernization work by comparing present gross income with estimated gross income based on result of preliminary survey. The difference capitalized at from 10 to 15 per cent will indicate the approximate additional investment that will be feasible.

## II. Preliminary Architectural Studies

(a) Secure original working drawings, or prepare measured drawings of the present building.

(b) Obtain report of present structural condition of building to determine soundness and

load-carrying capacity.

(c) If additions are to be considered, including additional bathrooms, examine into existing water supply, sewerage (or septic tanks) and pipe sizes to determine if they can absorb additional loads.

(d) Examine mechanical equipment to determine condition and feasibility of use as a

foundation for improvements.

(e) Study exterior with regard to feasibility of remodeling to improve style or appearance. Also study interior architectural and decorative treatment of public areas and guest rooms.

(f) Prepare preliminary sketch elevations and plans incorporating changes suggested by preliminary economic survey.

#### III. Development of Preliminary Studies

(a) With the preliminary architectural studies check over the existing building in great detail, paying attention to these points where they are affected by the proposed changes.

(1) Structural alterations necessary to incorporate changes,

(2) Changes in mechanical equipment required by modernization program.

Examine condition of existing walls. floors, woodwork, doors and windows throughout building to determine what replacements will be necessary, or whether redecorating and refinishing will be adequate where no structural alterations are involved.

(4) Examine lighting fixtures, hardware, electric outlets and other equipment features to determine finally what may be retained and what must be replaced

as part of the program.

(b) Revise preliminary plans and elevations as may be required after this survey.

(c) Prepare outline specifications of changes and secure estimate costs of work involved.

## IV. Development of Costs Studies

(a) Prepare a theoretical balance sheet for comparison, item by item, with existing balance sheet and operating statement to show: investment upon completion; gross income from rentals and concessions; fixed charges, and operating charges. Determine probable net income from operation as compared to present income or deficit.

(b) If net profits developed in this study prove inadequate, prepare revised architectural studies showing either a greater or lesser

(1) Consider feasibility of making less drastic changes by eliminating the items that are most expensive and that will increase revenue the least.

(2) Consider more drastic changes, including additional rooms or the introduction of more sub-rental space without proportionately increasing the development of non-productive area.

(c) When both economic and architectural studies indicate a logical solution of the problem. prepare final studies and financial statement for presentation to bankers.

#### V. Final Drawings and Specifications

(a) Proceed with preparation of working drawings, specifications and details in the usual manner, except that if the hotel is to be continued in operation while changes are made, the work must be so organized and scheduled as not to interfere with the convenience of guests.

(b) Select finishes and decorations as required to

complete modernization program.

## HOTEL FRONT OFFICE EQUIPMENT

BY

W. P. DE SAUSSURE, JR. EQUIPMENT ENGINEER

PROBABLY no hotel has enjoyed a higher prestige for service through many years than the original Waldorf-Astoria, in New York. Since service rendered in the front office was to some extent responsible for the enviable standing of this house, one might naturally assume that application of the principles and system of the original Waldorf office would fully meet any related requirement. What this system was, is no secret. It consisted of the application of one principle,-that of giving personality. After the first ten years at one station, the room clerks and information clerks applied their personalities to giving a superlative service, in the success of which equipment and system were merely incidental. Their task was rendered easier because traffic in mail, telephone, intercourse, and turnover at that time was small compared to the proportions it has reached today.

Unfortunately, under present-day conditions, one year is a long time for a front office clerk to remain at the same station. Before the Waldorf finally closed, the front office was enlarged, changed and rebuilt many times in a never-completed effort to accomplish what could have been done economically only in the office of the architect when the building was planned. This is not unlike the front office history of many hotels, some of them of rather recent construction. The

volume of traffic today in the front office of an active transient hotel located in a metropolitan center is greater in variety and number of items than that of any other business conducted in the same space. Personality at its best, however much it has done and is doing, is not equal today to coping with these modern conditions unaided by intelligent planning in which space is made available to meet the requirements of both traffic and an orderly arrangement of adequate equipment.

Functions. A clear mental picture of the functions of the front office, together with an approximate knowledge of the space these functions require in proportion to the size of the hotel, is necessary in order that the architect may include these details in his plans with assurance and success. There are three main functions in the front office, (1) Rooming; (2) Billing and Cashiers; (3) Information and Mail. Each of these functions requires front counter positions for transaction of business with patrons, these counter positions being so arranged that necessary equipment, concealed from the patron behind counter screens, is within sight and easy reach of the clerk. Some operators separate Information and Mail (General Delivery Mail) into two counter stations. Bill Clerks and Cashiers are separate stations, or one clerk assumes the duties of both, keeping and paying accounts ac-

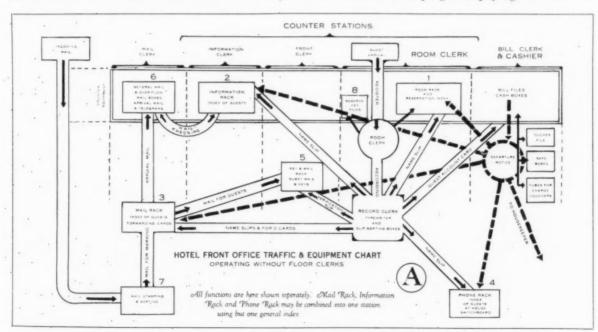


Chart Showing the Relations of Personnel and Equipment to Functions in a Hotel Operating Without Separate Floor Clerks

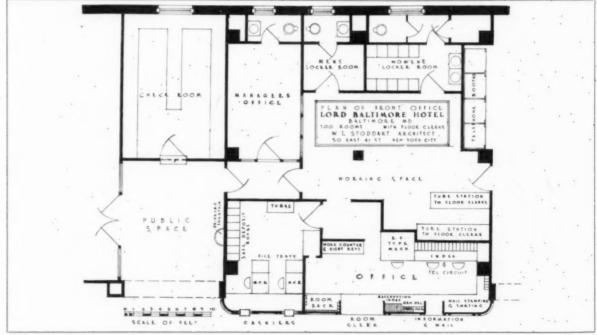
cording to the operating plans of the management. In neither case is the space required for these functions materially affected.

Counters. A straight front counter 2 feet, 6 inches wide by 3 feet, 4 inches high, without counter stations or counter openings at side counters, which would expose unsightly details of the office to public view, is the preferred type. The Rooming function in the center, with Billing and Cashiers to one side and Information and Mail at the other side is the preferred arrangement. Each Bill Clerk or Cashier requires a minimum of 4 feet, 2 inches of counter with a small window 12 or 15 inches wide in the counter screen. One clerk, or 4 feet, 2 inches of counter space, for each 400 rooms will give the total minimum length of front counter required for this function of the front office. Counter width on the clerk's side of the screen should not be less than 15 inches. On the patron's side of the screen a counter projection of not less than 9 inches is sometimes desirable for convenience of the patron in writing checks.

For Rooming and Information and Mail, the preferred arrangement consists of an open counter of generous proportions with equipment and work space for the several stations behind counter screens. Hotels of up to 300 or 400 rooms would have the room selling board (Room Rack) behind the counter screen adjacent to the Cashier's partition. A screen of balanced proportions to the Room Rack screen is located at the other side of the open counter for the Information and

Mail station and equipment. The key and letter rack for guest mail and keys faces the open counter. A counter station for a Front Clerk in the center of the open counter to pass out keys and mail is assumed to exist and is likely to be operated in busy periods. The preferred arrangement of the key and letter rack is one tier of pigeon-holes across the rack for the rooms of each floor of the hotel, or for each two floors when there are more than ten typical bedroom floors. The customary partition centers for these pigeonholes is 2 inches, and this multiplied by the number of rooms on a typical floor gives the length of the key and letter rack and a consequent basis for determining the length of the open counter. which should exceed the length of the rack by 3 or 4 feet. Add to the open counter from 4 to 8 feet for the two counter screens according to the size of the hotel, and we have the total counter length required. Hotels of more than 500 rooms might require an additional 2 feet, 6 inches of counter opening between the Room Rack screen and Cashier, for another Room Clerk, and a similar space at the other end of the counter for a General Delivery Mail Window and station. The width of counter on the Clerk's side of the counter screen should be 2 feet. The open counter facing the key and letter rack should not be of less than 6 feet, even in a very small hotel, and from 8 to 15 feet or more is required in larger hotels in proportion,

It is obvious from consideration of these requirements that having structural columns in the



Plan of the Front Office of the Lord Baltimore Hotel, Baltimore W. L. Stoddart, Architect

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front counter line, unless they are happily located and room is available to make up the lost counter space, should be avoided. Safe boxes 2 feet deep are customarily located behind the Bill Clerks or Cashiers. A minimum distance of 6 feet clear is required between the face of the safe boxes and the front counter line. This total clearance of 8 feet from the front counter line to the rear partition can be maintained as a minimum distance throughout the length of the office if neces-The customary distance from the front counter line to the face of the key and letter rack is 4 feet. In larger hotels a partition is extended on this line to conceal the working details of the back office. Openings in the partition should be without doors, and jogged or so arranged as to avoid presenting unsightly views from the front counter. Having additional length of office beyond the General Delivery Mail window for mail stamping and assorting to be done within reach of the front counter stations is the most economical arrangement of operating conditions for larger hotels. Additional depth of the office in excess of the 8-foot minimum is desirable in larger hotels to provide space for the office manager and for room reservation business,

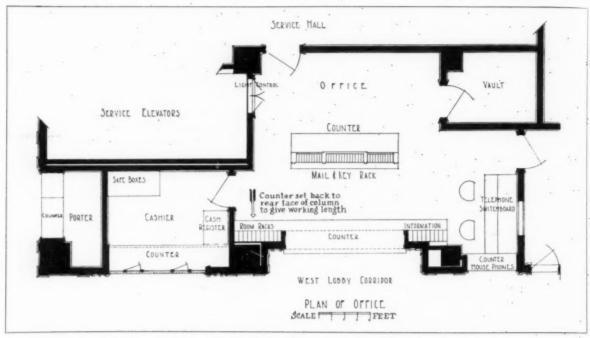
Departments and Equipment. Other stations and equipment are required back of the front counter. In the Cashier's Department this includes pneumatic tubes for receiving restaurant, telephone and other charges, mechanical posting machines or bill files, and space for a voucher clerk with a work counter near the tubes. In the Rooming Department a typewriter and record clerk for typing and distributing registration

records to the various departments is customarily located out of sight but within easy reach of the rooming counter. In the Information and Mail Department, special telephone information circuit equipment, and equipment for stamping and sorting mail are usually required. Electrical devices for timing items and for message recording may be required in all departments. In smaller hotels the telephone switchboard is usually located in the front office, preferably near the information index. When the size of the hotel requires a switchboard of more than two operating positions, it is generally best to assign a remote location where more space is available and suitable quiet and ventilation may be had. In placing the telephone switchboard it should be borne in mind that the back of the switchboard must be accessible for maintenance purposes. In the absence of specific information from telephone traffic engineers, the number of positions required may be figured on the basis of one for each 150 rooms. These and other details of screen dimensions and under-counter files will all be readily worked into final shape for a well appointed office if the factors and principles as outlined here are adhered to. The final plan is generally developed through advice from the operator and consultation with equipment specialists who supply the operating equipment. Much of this detail information is available in manuals published by manufacturers.

Floor Clerk Desks. Hotels which use Floor Clerks render key and mail service at the floor offices. The equipment of the Floor Clerk Desk in this case replaces the key and letter rack in



Front Office Plan for a 600-Room Hotel George B. Post & Sons, Architects



Plan of Front Office, Read House, Chattanooga Holabird & Roche, Architects

the front office. This eliminates the necessity for having a large open counter in the front office. The front office plan of the Lord Baltimore Hotel, illustrated herewith, may be considered typical of an office for this type of hotel. To fit this plan to a larger hotel of this type, add the required number of Cashiers and the Room Rack screen; increase the lengths of all counter screens, tube stations and index table; and provide one

or more additional Information and Mail windows. The Read House front office plan illustrates how the front counter may be set back of columns to gain necessary space for equipment and work counter. Study of the typical front office plans and of the two charts of front office traffic will aid in acquiring the clear mental picture which will make the problem of planning the front office comparatively simple.

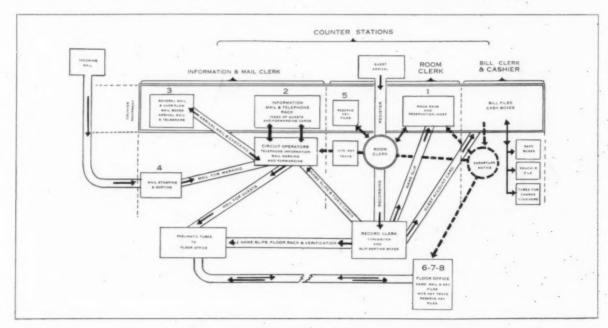


Chart Showing the Relations of Personnel and Equipment to Functions in a Hotel Operating With Floor Clerks

#### THE REDUCTION OF NOISE IN HOTELS

BY

CLIFFORD M. SWAN

THE first question that may come to the mind is whether noise really presents a serious problem in the modern hotel, except perhaps as far as the unavoidable sound of street traffic is concerned. A little reflection, however, will bring to the recollection of any traveler the loss of sleep he has suffered on account of an all-night poker game in an adjoining bedroom or because of a noisy elevator on the other side of the wall, or perhaps of the indigestion he has acquired through the nervous bolting of a meal in the hurried turmoil of the cafeteria or "coffee shoppe."

One assumes that a hotel is designed to cater to the comfort of its guests, and yet the chief factors in bringing this about,-namely, rest and quiet,-are often left entirely out of consideration. How much of this is due to false economy and how much to thoughtlessness or indifference, it is hard to say. At any rate, after some years of experience and scientific research, many of the difficulties arising from noise can be foreseen and their effects eliminated or minimized by suitable provisions in the design and specifications of the building and its furnishings. Ignorance is therefore no excuse, and the wise architect will devote a considerable measure of thought to such problems. In most cases, the proper provision for noise reduction must be made before or during the erection of the building. When it is completed, there remains little hope of correcting structural sources of trouble.

The Two Problems. There are two classes of problems to be considered. One is the reverberant condition which exists in many rooms and causes a magnification of any sound produced in them. The other is the transmission or conduction of sound from one part of the building to another. The first of these is susceptible of simple and positive solution according to known scientific laws; the second is more difficult, owing in part to complexities of structure and in part to lack of reliable data. Practical experience coupled with common sense is the chief guide in the latter case.

Reverberation, as every architect knows, is a condition existing in every enclosed room, no matter what its size or shape, when the interior surfaces of both the room and its furniture are composed of hard, sound-reflecting material. A sound generated in such a room can be heard for a number of seconds after the source has ceased, owing to the time required to absorb the energy in the course of many hundred reflections. Rapidly succeeding sounds therefore pile up on one

another and by such accumulation produce a magnified and jumbled mass of noise. Conversely, if the sound waves can be so rapidly absorbed during a few reflections that their energy disappears in a short interval of time, the magnifying effect does not exist, and the room seems soft and quiet. This desirable condition is brought about by the use of absorbent furnishings or by finishing a suitable proportion of the exposed surfaces with a porous acoustical material.

There are many places in a hotel where reverberation is likely to cause trouble. Dining rooms are subject to considerable confusion from the sound of talking, the clatter of dishes and perhaps the noise of a jazz orchestra. A heavily lined carpet often helps to solve the difficulty, but this is generally restricted to the main dining room and to private dining rooms. Grill rooms and cafeterias with their hard floors should have absorptive treatment on the ceilings. The same applies to kitchens, dish washing rooms, serving rooms and pantries, especially those opening into public rooms or corridors. The acoustics of a large ball room must be adjusted with some care, since such a room is frequently used for concerts, amateur plays, and after-dinner speaking. Its shape, its size, its finish and its furniture all play important parts, and require the same attention as any other auditorium, such as a church or theater.

If there is a swimming pool in the hotel, it should have its entire ceiling treated, not only for the sake of those using it but also to minimize transmission of noise to other parts of the building. Corridors and bedrooms generally have thick carpets which reduce the reverberation which would otherwise exist. In telephone rooms or executive offices where considerable noise is produced, there should be ceiling treatment. penthouses over elevator shafts should be lined on walls and ceilings with an absorber in order to muffle the sound of the machinery at its source. In general, it may be said that in all rooms where the furniture is scanty or not upholstered and where the floors are of an uncovered reflecting substance such as wood, concrete, terrazzo, marble or tile, the reverberation will be excessive and there should be absorbent treatment of the walls or ceilings or both. The extent of use of this material depends on the height and shape of the rooms, the amount and kind of furnishings, and the severity of the noise condition.

**Reflection.** Besides reverberation, which is occasioned by the diffuse reflection of sound, it is possible to have a certain amount of specular



Ceiling of Acoustical Plaster in a Large Ball Room

or mirror-like reflection. In such a case, echoes or distinct repetitions are produced. These may arise from parallel plane surfaces, but more often they are caused by a concave curved surface such as the vaulted ceiling of a ball room, grill room, swimming pool or lobby. To avoid such difficulty, the radii of curvature of all portions of such surfaces should always be considerably less than the height of the room or greater than twice the height. A surface with its center of curvature lying between these two extremes is sure to cause trouble.

Noise Transmission. We come now to the second part of our subject, the reduction of noise transmitted through the structure and partitions of the building. First of all, let us be sure that we understand the essential and great difference between this and the problems so far considered. Reverberation and echo are phenomena arising solely from the behavior of the waves of sound within any given room as they are reflected from the inside surfaces of that room, without any relation whatsoever to what happens in any other room separated from the first. Accurate calculation of the amount of reverberation can be made before a room is built, and provision can be made for the exact amount of absorption required to produce correct conditions, with definite assurance as to the results.

When we pass from the phenomena of reflected sound to those of transmitted sound, however, we enter an entirely different and more complicated field, handicapped by having inadequate scientific data and being forced to rely chiefly on practical experience. The methods used in the adjustment of reverberation have little relation to the new problem, except as they diminish the loudness of the originating sound. A new group of phenomena must be studied and a type of correction adopted in dealing with difficulties presented by this division of our subject.

Sound is produced by the mechanical vibration

of a material substance within certain limits of frequency or oscillatory period. When such an oscillation takes place, whether it be in a musical instrument or the human larynx or a moving machine, part of the energy is communicated to the surrounding air and radiates in all directions in the form of air waves. The rest of the vibratory motion is transmitted to the supporting structure of the sounding body, whence it may travel as sound waves through contiguous solids.

The air waves travel until they reach an intercepting wall, floor or ceiling, and are partly reflected, partly absorbed and partly transmitted. It is that portion of these waves which is reflected which we have so far considered. We have now to examine the transmitted portion of the air waves, together with those waves that are conducted through the structural support of the sounding body.

Of course, the first thing to do is to diminish the intensity of the sound as far as possible at the source. Footfalls should be deadened by carpets or other resilient floor covering. All machinery should be adjusted mechanically to run as quietly as possible. Fans, generators and other rotating machines must be accurately balanced, noisy gears must be avoided, elevator guides and brake shoes must be quiet. The reduction of reverberation is an aid in reducing the source intensity of unavoidable sounds.

Conduction. Having done all that is possible to diminish the amount of sound created, let us next consider that portion which is communicated by direct conduction. This includes not only the vibration of machinery attached to floors or walls, but also to musical instruments such as a piano or violincello and to all noise of direct impact, such as walking or hammering. Obviously, some form of insulation must be used to prevent these sound waves from gaining access



Noise Reduced by Using Sound Absorbing Fiber Board for a Ceiling in the Pantlind Hotel, Grand Rapids

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to the structural fabric of the building. The nearer such insulation can be placed to the source, the better.

Machines should be bolted to their foundations through layers of cork or similar material. The foundation, which must be of sufficient weight to provide the proper inertia, should in turn be completely insulated from all direct contact with its surroundings by thick layers of cork or other resilient material. The necessary thickness and density of the insulating material are determined by the load carried. Various spring devices have also been successfully used in some cases to take up the vibrations. As far as is practicable, machinery should be located in the basement or subbasement to minimize the penetration of sound.

Ventilating ducts should be broken by canvas sleeves near the fan to prevent conduction along the walls of the ducts. Water, brine and steam pipes may require flexible connections at suitable points if proceeding from a noisy source. Soil pipes should be wrapped in sound-insulating material. Pianos should have their castors placed in sound-insulating cups. Resonating platforms required for instruments such as the violincello or double bass should be insulated from the floor. Chairs on a wood floor should have rubber tips on the legs. Employes should wear rubber heels. Necessity for taking these and other elementary precautions ought to be self-evident, but strangely enough they are often forgotten.

Too much emphasis cannot be laid on care in insulation, especially of machinery. Once a sound gets into the building structure, there is no telling how far-reaching and unexpected its effects may be. Concrete and steel are perhaps the best conductors of sound among building materials, owing to their homogeneity and continuity. Brick, on the other hand, is a comparatively poor conductor, especially if there is considerable differ-



The Ceiling of this Room in the Hotel Statler, Boston, is of Acoustical Plaster



Sound Absorbent Fiber Board Ceiling in the Shorecrest Hotel, Milwaukee

ence of density between the bricks and the mortar.

Air-borne Sounds. We come now to a consideration of air-borne sounds. These may travel directly through ventilating ducts, through cracks around doors, through corridors or elevator shafts, or even through open windows and thence by reflection from the walls of a light well or nearby building back through other windows. Or they may travel through the air in the room where they are generated until they reach walls, floor and ceiling, where they are partially trans-

mitted into adjoining rooms.

Ventilating ducts are often a source of considerable difficulty. As far as noise from the fans is concerned, relief can be obtained by lining the interior walls of the duct with a suitable soundabsorbing material for a distance not less than four times the diameter of the duct. It is preferable to place this material near the fans and if possible around a bend in the duct. More serious trouble is experienced where there are several openings from one duct into different rooms. This should be given attention in the ventilating design, and nearby openings should be insulated from one another by absorbent duct lining. The worst trouble is generally in bathrooms all opening on one shaft. A bathroom is always very reverberant, owing to its hard enameled finish. This accentuates the sound of voices so that in combination with open ducts it is possible in many hotel bathrooms to hear conversations in a neighboring bathroom as distinctly as if they were in the same room.

A door crack or a keyhole allows a surprising amount of sound to pass. Bedroom doors, and especially those between rooms, should be carefully fitted, rabeted edges preferred, and with a snug threshold. The old-fashioned lock with its large keyhole, still sometimes to be seen in small hotels, should never be used. The modern

double lock used in first class metropolitan hotels should always be specified. Corridors should always be heavily carpeted, not only to reduce the reverberation but also to prevent reflection which would make them act like speaking tubes. Elevator shafts must be as nearly sound-

proof as is possible.

Soundproof Partitions. Here we reach the most difficult problem of all—the construction of "soundproof" partitions-a field in which angels may well fear to tread. There is no doubt about the necessity of sound-resistant construction, not alone around elevator shafts but between bedrooms and other rooms, and sometimes even between floors. The question is how to provide a reasonably efficient partition which shall at the same time be not too thick nor prohibitive in price. These requirements are not consistenthence one difficulty. Another obstacle is our limited knowledge from actual experimental data of the exact behavior of various materials and forms of construction when used in all their possible permutations and combinations. The third hurdle is the ease with which even the most carefully planned construction can be entirely ruined and set at naught by a single careless blider on the part of some mechanic or his helper.

The factors governing the effectiveness of a surface of any given material as a barrier to sound are density, porosity, heterogeneity, thickness, stiffness and degree of damping. To produce a really efficient sound barrier, two or more materials are generally used in combination, with or without air spaces. Taking these facts in conjunction with various possible ways of erecting the materials, we see at once how complicated the problem really is and how much we need extensive unbiased research to reach a real solution.

In a hotel, the insulation of floors does not often have to be considered. Where it is necessary, the best solution seems to lie in a hung ceiling with an unbroken blanket of some good absorbent material in the space between the ceiling and the overlying floor slab. A floated floor is sometimes used above the slab, but in general it does not seem to be as effective, at least for air-borne waves, as the furred ceiling construction. The chief problem in hotels lies in the walls, especially between bedrooms. It is not the purpose of this article to recommend any definite form of construction for such purposes, but rather to indicate some of the lines of approach.

In general, a single wall plastered directly on both faces permits the passage of considerable sound. By alternating layers of widely different density in the construction, a great gain in efficiency can be produced. Thus a double wall, with an air space in which is placed an absorbent blanket, will show fairly good results with proper care in erection. The two walls must be absolutely independent, without any contacts which will serve as conductive channels. Braces between such walls may even act like the sound-post of a violin and accentuate rather than diminish the transmission. The disadvantage of the double wall is, of course, its thickness and cost.

Other types of walls with various combinations of hard and absorbent substances have been tried with varying degrees of success. The danger in such cases lies not so much in the failure of the combined layers to act as a direct barrier to the sound as in the tendency to reduce the thickness and total mass of the wall to such an extent that stiffness is sacrificed. The resultant flexibility causes vibration of the wall as a whole, and by this diaphragm action it allows impinging sound to be communicated to the air on the other side. With walls of large extent, some sort of an interior air space seems to be almost a necessity unless they are very massive and heavy.

Whatever type of construction is adopted, extreme care must be taken to supervise the actual work in order to be sure that the specifications are carried out to the letter. Double wall construction has been known to fail because workmen have dropped mortar and rubbish in the air space, thus making direct contact between the two walls. Electricians are likely to cut a hole entirely through the wall and place outlet boxes back to back in the aperture, so that to all intents and purposes there exists an open window between the rooms. The layout of electrical conduits, steam and water pipes and ventilating ducts must be studied with care that they shall not pierce the soundproofing.

Communicating doors between bedrooms are a serious weakness. An ordinary single paneled wood door is of about as much value as a sheet of paper. The rational solution is to use a double door, as is often done in the better hotels. Such doors should be flush and not paneled and should be as thick and heavy as practicable. There must be no cracks around them. Elevator, and dumb-waiter shafts if improperly insulated are a source of great annoyance to guests in adjacent rooms. Particular attention should be

given to them.

As has been pointed out, attention and common sense are the fundamental elements most necessary in providing for noise reduction in hotels or other buildings. With due exercise of these qualities, many problems can be foreseen and met, with much consequent saving of time, annoyance and expense. There is, to be sure, much yet to be learned about the behavior of sound in building structures, but sufficient is already known to make it possible to avert some of the dire results which are often encountered.

#### MODERN KITCHEN EQUIPMENT CONSTRUCTION

BY

#### VINCENT R. BLISS

TAYLOR, ROGERS & BLISS, CONSULTANTS

If one were to compare 25 hotel kitchens as they were equipped 15 years ago with an equal number of the last few years' installations, it would be forcibly brought to light that the present-day standard of construction and materials is far superior. In part this is the result of the better structural methods used by the manufacturers, but to a greater degree it reflects a change in the attitude of hotel operators and their architects.

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It has taken time to accomplish it, but hotel and restaurant men now seem to be thoroughly alive to the soundness of investing in equipment with an eye to more than initial price. With the liberal profits of the bar business no longer here to fall back upon, food service operation has come in for intensified business study, and the improved conception of the value of culinary apparatus is a natural result. More than this, standards of cleanliness and sanitation have entirely changed. It used to be common to hear some sophisticated person remark: "If you could see the kitchen that food came from, you wouldn't want to eat it." This sort of indictment is no longer justified. The newer types of equipment are just as far advanced in cleanliness and appearance as they are in durability.

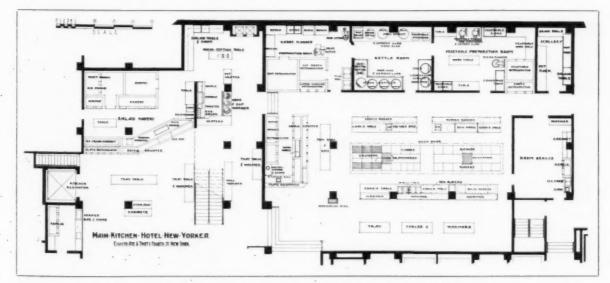
Architects no doubt will claim a share of the credit for this improvement, and there is evidence to support this contention. The interest they display in the food service facilities of buildings of

all types is noticeably more active, and their cooperation with the kitchen engineers is infinitely more understanding than was the case even ten years ago. While recognizing this improvement, however, it is well to be equally frank about the other side of the picture. These considerations, therefore, are recommended for serious thought:

- Few architects or hotel operators have more than a superficial understanding of kitchen equipment construction.
- 2. There is a general lack of knowledge as to what features of construction are really essential to economy and practicality.
- 3. Much of the equipment that is now being used is distinctly behind the times and should be improved upon.
- There is far too much specially designed and made-to-order equipment used in most kitchens.
- 5. A definite need exists for more standardization in equipment design.

Furthermore, so long as quality of equipment is imperfectly understood, the judgment used in the forming of specifications and awarding contracts is quite likely to be at fault. The obvious corrective is the intelligent use of the architect's power to guide and define specifications, but this can be made effective only through a study of equipment construction and a clear insight into the conditions of the industry.

Determining Quality. In deciding upon the



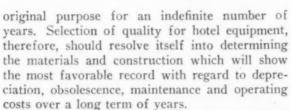
Plan of Main Kitchen, Hotel New Yorker, New York
Sugarman & Berger, Architects

general quality of equipment to be specified for a kitchen, individual conditions are the first to be considered. For a restaurant operating in rented space, the length of the lease and the likelihood of its being renewed will be factors, for there is undoubtedly a definite relation between the length of occupancy and the rate of depreciation which should properly be charged against the equipment investment. For hotel structures, however, this is rarely a point of issue, for regardless of changes in ownership, it will logically be expected that a hotel building will be used for its

of corrosion-resisting alloy metals. This type of metal has proved itself ideal for kitchen equipment purposes, for it not only has ample strength and durability but is practically unaffected by any corrosion, has no contaminating effect upon food, and retains its fine silvery appearance indefinitely, while lowering maintenance and cleaning costs. Its use in the manufacture of equipment is constantly widening, and in many of the recently built kitchens it is specified almost to the exclusion of other metals. The cost of alloy metal equipment is higher than that of any other



Main Kitchen, Fountain Square Hotel, Cincinnati



That the various grades of kitchen equipment differ greatly in their ability to stand up under service will not be questioned. It is interesting to observe in this connection that the generally accepted rate of charging off depreciation on kitchen apparatus is 10 per cent per year, and that while no doubt it was the object in naming this figure to be thoroughly conservative from a financing standpoint, it is probable that a ten-year life is not far from the performance actually experienced by many. Experienced operators, however, know that this ten-year life can and should be vastly improved upon.

The Choice of Materials. One of the first points to come up for consideration in preparing specifications is the choice of materials. Many years ago the better class equipment made use of a blue-black steel body with polished or nickel plated steel trim, and polished steel tops. Later, the use of porcelain-enameled steel for body panels became quite popular, but of recent years there has been a very strong trend in the direction



Main Kitchen, New Jefferson Hotel, St. Louis

type, but that it is economical has been proved. There are, of course, hotels whose finances will not permit exclusive alloy metal construction, but even in the least expensive installations there are certain places where the use of any other material is extremely short-sighted. Just where to draw the line in this respect is often puzzling, but this might be taken as a fairly practical rule:

1. Corrosion-resisting alloy metal should be used for:

Steam table tops and accessories.

Urn stand tops.

Cafeteria counter tops.

Soda fountain workboards.

Ice cream cabinets and cooler tops.

2. Wherever possible alloy should be used for:

Pot and vegetable sinks.

Dish table tops.

Work table tops.

Warmer and serving fixture tops.

3. For ultimate economy and fine appearance, alloy metal should be used for:

Warmer and cabinet bodies and trim.

Range and boiler bodies.

Counter bodies and trim.

Hoods and canopies.

Refrigerator linings and facings.

Dishwasher bodies.

(Continued on page 748)

#### A COMPARISON OF EQUIPMENT CONSTRUCTION

These two diagrams have been made to show how greatly two pieces of kitchen equipment may differ in construction and quality while still being so nearly alike in appearance that they might easily be confused with each other. The examples shown here are identical in dimensions. general design and arrangement-yet an analysis of their construction reveals 15 important points on which Fig. 2 is definitely inferior to Fig. These structural differences alone (without taking into consideration the probability of

poorer workmanship and finish) are enough to cause a 25 per cent lower cost for Fig. 2, but this saving is more than offset by the shorter life and greater expense of upkeep that will be the result of its inferior construction. While this comparison was intentionally made somewhat extreme for purposes of demonstration, it is not unusual to encounter equally serious differences in actual competition, especially when the additional elements of workmanship and changes in design are taken into account. A study of these diagrams point by point will be of practical help in forming specifications. The word "metal" indicates non-corrosive alloy metal in these descriptions.

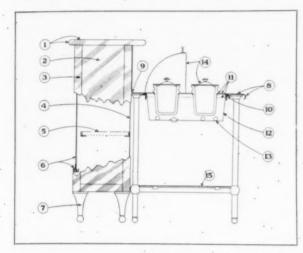


Fig. 1 Cook's Table, Steam Table and Warmer, High Grade Cook's Table, Steam Table and Warmer, Inferior Con-Construction

 Warmer top is No. 12 gauge metal with rolled edges, and welded corners rounded and finished smooth. 2. Warmer body panels are solid No. 20 gauge metal.

Angle corners and trim of warmer are of solid metal.
Rear side of warmer body of No. 20 gauge solid metal.
Shelves are No. 18 gauge metal, edges turned down on all four sides, edges neatly hemmed back to prevent sharpness, corners welded. Shelves perforated and removable in sections and rest upon angle

frames riveted to body of warmer.

6. Warmer doors are of solid No. 18 gauge metal, with one-piece welded No. 12 gauge solid metal frames. Door handles chromium plated, roller bearings.

Warmer has cast white porcelain sanitary legs.
 Cook's table top is No. 12 gauge metal with rolled edges and corners welded, rounded and smoothed.
 Rear edge of cook's table top is turned up and extends

up to underside of serving top of warmer, with 2-in. solid metal band trim.

10. Opening for steam table is reinforced underneath with No. 10 gauge 1½ in. metal angles on which the steam table rests so that top of steam table is perfectly flush with top of cook's table.
11. Steam table top of solid No. 14 gauge metal, braced beneath by metal "V" struts, insuring absolute vicidity. Openings in top hour grainforced address.

rigidity. Openings in top have reinforced edges.

12. Water pan made of 30-oz. cold rolled copper tinned inside, securely seamed and soldered at all joints.

13. Brass steam coils. Jar covers, meat pans and meat pan covers all made

of metal; vitrified china jars. Removable slatted band iron shelf, galvanized.

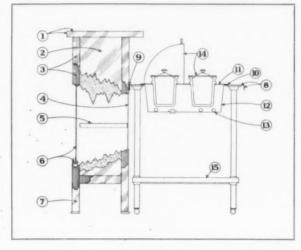


Fig. 2 struction

Top is No. 14 metal with square edges and corners welded but not carefully finished.

Warmer body panels are thin (No. 25 gauge) metal over galvanized iron.

Angle corners and trim are of steel, wrapped (ve-

neered) with thin gauge metal.

Rear side of warmer is of galvanized iron.

Shelves are No. 20 gauge galvanized iron, riveted to the warmer body. These shelves are not perforated, not removable, do not have welded corners and are

not removable, do not have welded corners and are unsupported by any angle framework.

Warmer doors are of No. 25 gauge metal over galvanized iron with wrought steel frames wrapped with thin gauge metal. Doors have nickel plated handles, and operate without roller bearings.

Angle corners of warmer body are extended to floor, Top is No. 14 gauge metal with square edges and corners welded but not finished smooth.

Rear edge of cook's table is turned down leaving

9. Rear edge of cook's table is turned down, leaving

the galvanized iron warmer back entirely exposed. Opening for steam table is not reinforced; steam table is mounted on cook's table top, and therefore

table is mounted on cook's table top, and the two tops do not provide a flush surface.

11. Steam table top is made of No. 22 gauge metal stretched over galvanized iron. Bracing beneath top and reinforcement around openings are omitted.

12. Water pan made of 24-oz. copper, tinned inside but

less carefully constructed.

Galvanized iron steam coils.

14. Nickel plated copper meat pan and jar covers and enamelware meat pan; stoneware jars. 15. Galvanized sheet steel shelf.

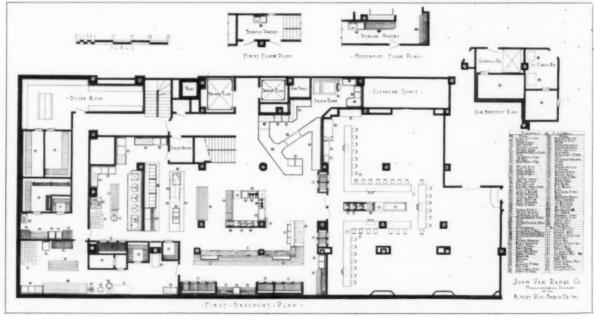


Coffee Shop Serving Kitchen, Lord Baltimore Hotel, Baltimore

Where the use of alloy metal is out of the question because of cost, the body construction of general service equipment may make use of porcelain-enameled steel, blue-black steel or galvanized iron. Porcelain-enameled steel does not offer much of a saving, and for this reason it is diminishing in popularity, except for counters and other fixtures to be used in the restaurant proper. Blue-black steel is lower in cost, but it must be given constant attention to prevent its becoming ruined by rust. Galvanized iron is, of course, the cheapest of all, and is likewise the least satisfactory from the standpoint of appearance and ease of cleaning,—disadvantages which are somewhat offset by keeping the equipment painted.

Differences in Methods of Construction. Settling upon the general design and materials to be used in the kitchen equipment unfortunately does not dispose of the question of quality, for the method of construction is equally important. Grades of quality are very loosely defined. No two manufacturers use exactly the same methods of construction, and indeed some concerns have two or more qualities upon which they will figure according to circumstances.

Without going into a multitude of details, it is a little difficult to give a clear idea of the structural variation that is possible on equipment of almost identical outward appearance. Individually, these differences may often seem small, but in the aggregate, they mean a great deal,-and it is this fact that accounts in most cases for the wide disparity between the high and low bids which frequently occurs. Your specifications will call for equipment as made by some manufacturer whom you have selected for his responsibility and engineering skill, with the qualification that consideration will be given to other manufacturers' products, which in your judgment are of equal merit. That is as it should be, but it is still a truth that the majority of the bids received may not be on the original quality specified at all. Even the most responsible manufacturers, no matter how sincerely they may try to conform, will show some difference on 90 per cent of the items other than specialties. But among the group of concerns called in, it is safe to say that there always will be at least one which will attempt to secure the business on the basis of low price alone, and which, in order to do so, will interpret the specifications just as much in



Plan of Main Kitchen, Lennox Hotel, St. Louis Preston J. Bradshaw, Architect

favor of cheapened construction as it feels is safe. There is only one way to guard against this. The original specifications must be thorough, explicit and complete, and the discretion used under the "or equal" clause must be based upon an investigation of each firm's methods of construction, rather than on a general impression as to its responsibility.

A concrete illustration will help to make this more understandable. Let us take for an example a combination of cook's table, steam table and service plate warmer,—an item of equipment which is included in every hotel kitchen. Assume now that you have decided on what might be termed complete alloy metal construction, and that your specification reads in this way:

Cook's Table With Steam Table and Service Plate Warmer

"Cook's Table top to be 10' long, 30" wide, and 34" high, constructed of heavy gauge Monel metal, with edges turned down 1½" and corners welded. Table top is to be supported on iron pipe stand, furnished with galvanized iron shelf 10" above the floor. The top of Cook's Table is to have opening to accommodate Steam Table specified hereafter.

"Steam Table is to be 52" long, 22" wide, and is to have a heavily constructed Monel metal top, with openings for three meat pans and two gravy jars. Water pan is to be of heavy cold rolled copper tinned on the inside and 7" deep. Steam Table to have waste and water filling connections and to be arranged for steam heat.

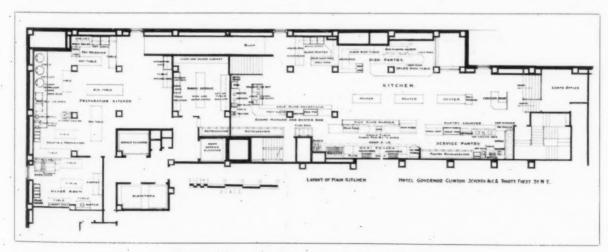
"Service Plate Warmer is to be 10' long, 15" deep and 48" high. The top of Warmer to be 20" wide, extending over front and ends 1½", the rear extending over top of Cook's Table, and is to be of heavy gauge Monel metal with edges turned down 1½" and corners welded. The



Cafeteria, Lord Baltimore Hotel, Baltimore W. L. Stoddart, Architect

body of Warmer is also to be of Monel metal mounted on 8" legs and is to have four horizontal sliding doors across the front. Warmer is to have three shelves, counting the bottom as one, and is to be arranged for steam heat."

Under these circumstances it is entirely conservative to say that from 10 to 20 important features of quality are subject to variation at the option of the manufacturer. On another page there are shown comparative diagrams of two fixtures of this type, and a brief study of the data will make it quite evident that neither superficial appearance nor a general specification is sufficient to determine the true quality. The two pieces of equipment shown in the diagrams look so nearly alike that they might easily be confused, and either of them would fit the specification given here. Yet in the details of their construction they are so far apart that to compare their prices on an equal basis would be absolutely unfair. Without taking into consideration the



Main Kitchen, Hotel Governor Clinton, New York Mergatroyd & Ogden, Architects

slighted workmanship which might accompany cheapened construction, the poorer fixture would probably cost 25 per cent less to manufacture, and yet its value per dollar to the purchaser would be far less than that of the better product.

The occurrence of any such disparity in quality between competing bidders will be largely blocked by the adoption of a more comprehensive and definite specification than that just quoted; the better specification would read, in part:

Cook's Table With Steam Table and Service Plate Warmer

"Cook's Table top to be 10' long, 30" wide, and 34" high, constructed of heavy No. 12 gauge Monel metal, No. 3 grind, satin finish and to have a neat rolled rim 11/2" on working side and both ends with corners welded solid and finished smooth. At the rear, the table top is to be turned up against the back of Service Plate Warmer and to extend up to the underside of serving top of Warmer and trimmed with 2" No. 12 gauge band Monel, No. 3 grind finish. Table top is to be supported on 11/4" iron pipe stand, flanged at top with malleable rail fittings and cross rails all around, and furnished with ball feet. Resting on cross rails of stand there is to be a slatted band iron shelf, galvanized after made. Bands to be spot-welded to galvanized angle cross braces. Ends of bands neatly curved to fit around cross rails of stand, to be made in suitable removable sections. The top of Cook's Table is to have opening to accommodate Steam Table specified hereafter, opening to be reinforced underneath with 11/2" No. 10 gauge Monel angle, angle edge protruding 3/4" inside of opening on which the Steam Table top will rest, so that the top of Steam Table will be perfectly flush with top of Cook's Table."

As can be seen, this specification calls definitely for the better quality of fixtures, and it could not in any fairness be filled by a product of inferior construction.

But even the best of specifications cannot take the place of intelligent analysis, and the nature of the equipment used in kitchens and restaurants requires that constant vigilance be used in order both that quality may be protected, and that manufacturers may be enabled to bid under the most advantageous conditions. Some latitude must be allowed, but this must be under tight rein. Every variation that is permitted in the original specifications should be thoroughly analyzed and its value weighed accordingly.

Standardized vs. Made-to-order-Equipment. To say that kitchen equipment products are in urgent need of standardization, both as to sizes and designs, sounds like a vague generality. That

this is a practical and not academic problem will quickly be seen when it is said that to manufacture a single fixture,—a steam table, for instance,—costs from 10 per cent to 20 per cent more than would be the case if the product were made in lots of from six to a dozen,—and yet this does not begin to tell the story, for manufacturing products a dozen at a time in no way approaches "quantity production." What is needed is a condition which will permit the building of 100 or more fixtures on a continuous production schedule, and when this happens it will not only bring about a drastic reduction of costs but in all probability a further improvement in quality.

Part Two

Without the active help of architects and restaurant operators, little can be done. Architects can discuss the problem thoroughly with the kitchen specialists who are cooperating with them and encourage the use of standardized designs and sizes wherever possible. Any kitchen outfitter who does not respond to this invitation with enthusiasm may be charged as seriously lacking in progressiveness.

Developments in Refrigerators. A commentary upon the subject of kitchen apparatus would be incomplete without mention of refrigerators and cold service fixtures. Here, too, a general raising of standards is to be observed. One interesting new development is the improved use of individual self-contained refrigerating units for single fixtures in isolated locations.

On the whole, it is agreed that our mechanical refrigerating machinery is very efficient, and that, barring some unexpected new discovery, further improvement will be in the nature of refinement. In view of this the most hopeful opportunity for bettering performance seems to lie in planning the refrigerator itself. Taking the heat out of the refrigerator is only half of the problem; it is just as important to prevent heat entry. Thus refrigerator insulation becomes a very live topic, and as we study it we are finding that many of our old ideas are incorrect. Through the findings of the United States Bureau of Standards and other scientific agencies, it has been shown that the last word about refrigerator insulation has not yet been written, and that there are new substances available which will materially better present performance. For example, one such material, composed of a vegetable fiber, is reported by the Bureau of Standards as being approximately 25 per cent more efficient than the average insulation used today. Non-corrosive alloys are being used largely in refrigeration box construction in place of wood. The result is a stronger, more efficient, more uniform and attractive product.

# REQUIREMENTS OF HOTEL GARAGE DESIGN

BY

#### ROGER B. WHITMAN

HE providing of accommodations for automobiles has long been part of the service of a hotel to its guests, but only of late years has it been recognized as an important factor in the business of hotel keeping. With the increase of automobile touring and the use of cars for business travel, garage conditions are now known to have a direct bearing on the success of a hotel. and for this reason they should be taken into consideration from the inception of any hotel project. Dependent on his car for transportation and desirous of making the most of the daylight hours, the traveler is attracted to the hotel that, other things being equal, allows him to go from his car to his room with the least exertion and permits his departure at the shortest notice. From this point of view the maintenance of a garage is justifiable even when it does not show a consistent profit, for a deficit may reasonably be charged to service and to promotion.

in

General Conditions. In its relation to a hotel, a garage is in the same category as a laundry in performing a service necessary to the comfort of the guests. As with a laundry, a garage may be owned and operated by a hotel, or it may be a business separately owned and managed but with an agreement by which the hotel may or may not profit. If it is of outside ownership but bears the hotel's name, the house will suffer from delays or other poor service, and for this reason it should protect itself by having some form of control over the management.

Handling Peak Loads. A garage supported

by a hotel alone will be subject to peak loads of two classes, and will earn its prestige by its

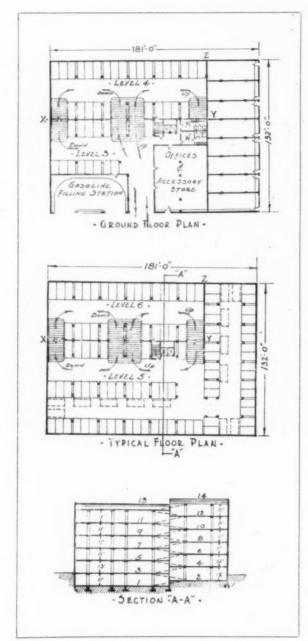
ability to handle them without delays and interruptions. One peak is annual, and will be at its height during the vacation season. The other peaks will be of daily occurrence and will be due to the exodus of a majority of the guests during a brief period in the morning and their arrival during a similarly brief period in the late afternoon. The meeting of the annual peak requires the provision of sufficient floor space for the storage of the maximum number of cars, while the handling of the daily peaks calls for design and organization that will permit the prompt delivery of any desired car and the immediate housing and unloading of arriving cars without congestion. Keyed to these peaks, there will be losses during the slack periods through unused space and idle employes, and overhead can be held down only through design that will give satisfactory service with a staff of minimum size. It may be possible to use the garage facilities for other purposes, as, for instance, the storing of cars of local business people during the day when the hotel load is light, although this is usually more practicable with a garage separate from the hotel than when it is on the property.

Ideal Service. The maximum of service will be rendered when a guest can go from his car directly to his room, have free access to his car, and be able to take it out when he pleases, a condition that is possible only when the garage is part of the hotel. This is now the accepted treatment, and one that is being commonly adopted. Success is dependent on design, however, which in turn will depend upon the general operating plan and the proposed balance of income plus the





Interior and Exterior of the Statler Hotel Garage, Buffalo
George B. Post & Sons, Architects



Staggered Floor Ramp. Garage for Statler Hotel Buffalo

Typical Floor Storage. Berth Storage, 98 Cars at 244 Sq. Ft. Per Car; Aisle Storage, 13 Cars; Total, 111 Cars, 216 Sq. Ft. Per Car

value of the service to be rendered against expense and overhead.

It is obvious that income will increase as more cars are stored in a given space; but this on the other hand will usually lead to a slowing down of delivery time, the need of more employes, and greater risk of accidents that may result in damage suits. Reducing the number of cars gives more handling space, and accurate driving then not being so necessary, fewer employes will be

required through permitting owners to park their cars themselves.

Inter-floor Travel. The problem of design is simplest when a garage occupies but one floor and is on the street level. This will rarely provide sufficient area, however, and there must then be a selection of means for inter-floor communication. The choice will be between ramps and elevators, the former operating by the power of the cars and therefore without expense to the garage, and the latter requiring the purchase of electricity. Neither is best for all conditions; choice will depend on available floor space, the desired facility in handling peak loads without congestion, and other local and individual considerations.

Ramps. In buildings of usual design, ramps will be long, and whether straight or curved will call for skill in driving that may be beyond the average driver; in such cases, cars will usually be handled within the garage by trained employes. In the d'Humy ramp garage the staggering of front and rear floors permits the ramps to be short and straight; they are safely negotiable by drivers of ordinary ability, and their use greatly reduces the chance of accident. Ramps of twocar width, especially when arranged for one-way traffic, allow maximum speed in receipt and delivery, for there is free communication between every stall and the street. It has been shown in practice, however, that while owners will drive up one or two levels, they may be unwilling to go much higher. If this is necessary, they will leave their cars on a lower floor for further handling by employes, who will be required in greater numbers as the height of the building is increased.

Elevator Systems. With elevators, all levels are equally accessible, and a number of plans are in operation or proposed for maximum utilization of space and for a reduction in the number of employes through automatic handling. In ordinary design an elevator that may be of twocar capacity connects on each floor with a runway to the stalls, cars being driven in and out by employes. The Kent Garage in New York provides machinery for the handling of a car from the entrance, where it is left by the owner with locked controls and doors. By a series of power-driven dollies it is loaded onto an elevator, placed in a stall and when wanted moved to the exit door. Lateral shifting devices are provided for the utilization of spaces wider than the elevator. Another system is based on elevators carrying six cars on two decks at right angles, and fitted with tilting runways for unloading by gravity. Similar tilting runways in the stalls return the cars to the elevator. In the Rotafloor system the elevator is surrounded by a rotatable ring of sufficient width for radial parking, the rotation of the ring bringWO.

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ing any stall into line with the elevator for the reception of a car or for its delivery.

Set in a large floor, cars cross it to parking spaces in other parts, the ring being used for storage only when the other stalls are occupied.

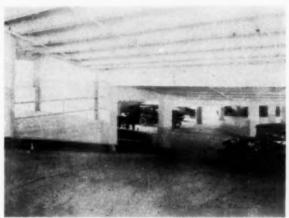
Such systems utilize floor space to maximum efficiency, and for certain types of garage, as well as in reduction of personnel, they are undoubtedly of great value. When supplying garage accommodations is part of the service of a hotel to its guests, however, there is more than this to consider, for the slowness of elevator service may lead to dissatisfaction. An elevator averaging two minutes to the round trp, including loading and unloading, would be operating at as high speed as could usually be expected; but the limit of 30 cars an hour that could thus be handled by a one-car elevator is likely to be too little to meet the daily peaks.

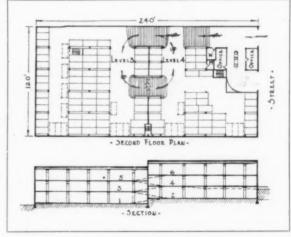
Ramp-elevator System. When but three garage floors are provided,-basement, street floor and first floor, or sub-basement, basement and street floor,—the ramp system will give quicker service, while for a greater number of floors it is probable that the best results can be had with a combination of ramps and elevators. In this case, cars would discharge their loads on the floors connected by ramps and would remain there until the subsiding of the rush gave time for the employes to remove them by elevator to the storage floors. The outgoing peak would be prepared for by returning the cars to the ramped floors. With the ramped floors serving as reservoirs to absorb the peaks and the elevators for later distribution and earlier collection, this combination should provide the maximum of speed and con-

Parking Machine. The Westinghouse parking machine recently introduced should have consideration for certain uses, for while the units are at present limited in size, they can be arranged in batteries of large gross capacity. This machine consists of two endless chains passing over wheels top and bottom, with platforms suspended between them of a size for one car each. Any platform can be brought to the entrance level by the pressing of the appropriate push button, and a car driven into the machine occupies its platform until called for. An existing installation provides storage for eight cars, and it occupies no more ground space than an ordinary two-car garage.

Facilities. As a garage management will be held responsible for the care of cars and other property in its charge, theft should be guarded against by providing but one entrance and exit, an arrangement that also facilitates checking in and out. At this point the design should also include a sales space, for revenue from the sale

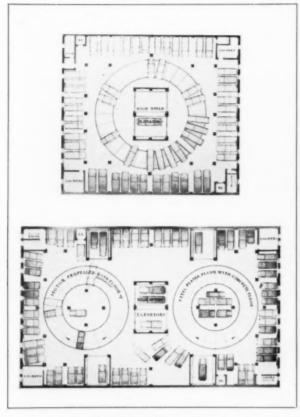




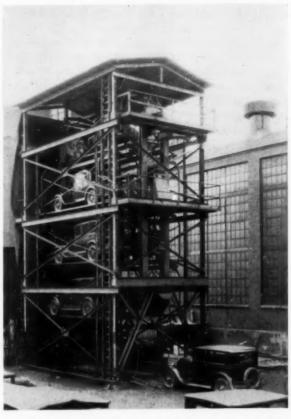


Exterior, Interior, Plan and Section of a Staggered Floor Ramp Garage. Olympic Hotel Garage, Seattle Robert Reamer, Architect

of gasolene, oil, tires and other accessories should amount to a considerable percentage of the total income. Here also there should be a waiting room to which baggage can be brought, and for use of guests whose cars are being serviced or otherwise detained. The importance of this part of the project becomes apparent when it is realized that to guests traveling by car, the first impression of a hotel will be made by its garage.



Garage System that Combines High Speed Elevators and Rotating Floor Section



An Elevator Parking System Built on the Principle of a Continuous Belt



An Elevator Garage System which Permits Cars to be Locked by the Owners, Subsequent Handling and Parking are Accomplished by Means of the Trucks Shown

### HEATING AND VENTILATING OF HOTELS

HARRY J. CULLEN CONSULTING ENGINEER

HE usual method of heating a hotel is by direct radiation, generally located under windows and exposed in bedrooms, stores, etc., but concealed in the main lobby, dining rooms, ball

rooms and other public spaces.

The type of heating system in a commercial hotel building is usually a two-pipe, down-feed, vacuum return. An attic space of about 6 feet is provided at the top of the building below the main roof, where the steam main is run from a main steam riser located in a main pipe shaft extending from the boiler room up to the attic space. The attic space also contains ducts for bathroom ventilation and plumbing pipes. The object of running steam mains in the attic space is to gain more head room under return mains on the basement ceiling, as rentable space is usually available in the basement for billiard rooms, barber shops, boot black and coffee shops, etc.

One Pipe Steam. There are various types of direct steam heating systems that may be applied to the average hotel. There is the one-pipe steam heating system with an air valve on each radiator. This system is the cheapest to install, but the disadvantage is that in a fairly high building the steam risers will be too large, as the condensation from the radiators flows back in the steam risers and mains to the boilers, and if large pipes are not provided there is the possibility of waterhammer in the mains. The air valves, if not of a good make, will require readjustment frequently, as one may have seen steam or water escaping from many air valves on radiators. If a good type air valve is used, this trouble will be eliminated, but it is an easy matter for anyone requiring an air valve to "lift" one from any radiator in the hotel.

Air Valves. A one-pipe steam heating system, when starting up, requires considerable time before the radiators are all hot, as all the air in the system must be expelled through the small holes in the caps on the air valves. If vacuum air valves are installed, they prevent the air from reëntering the system when the fire in the boiler is banked. But if this type of valve is used, the joints in the pipes and packing around the valve stems must be absolutely tight, or the air will leak into the system again at these points.

Two Pipe Vapor. Another type is the twopipe vapor system, which has an advantage over the one-pipe system, as it does not require any air valves on the radiators, the air being removed from the system by an air eliminator located in the boiler room. This system supplies steam to the

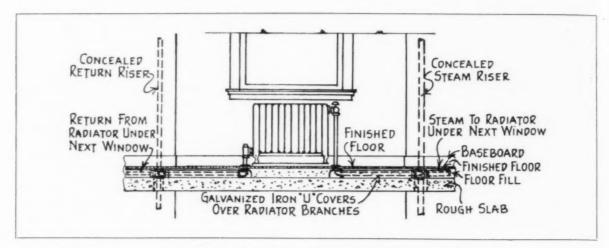
radiators at or slightly above atmospheric pressure (212°) and is generally used in smaller hotels or bank buildings, but in large structures requiring about 2 pounds pressure in the boilers due to loss of pressure in mains, this pressure would blow the seals out in the return connections on the radiators.

Two Pipe Gravity. Still another type is the two-pipe, open end, gravity return system. It has an advantage over the vapor system, as the steam pressure can be 2 or 3 pounds in the boilers, and may be raised to 5 pounds if necessary during cold weather. This type of system also has an air eliminator, or alternating receiver, located at the boilers, which allows the air in the system to escape, and returns the condensation to the boilers. The radiators for this system are of the hot water type with a moderating valve on the steam connection at the top of the radiator on on end, and a thermostatic valve on the bottom of the radiator at the opposite end. The modulating valve may be opened as required to allow a certain amount of steam to enter the radiator to keep the room at a comfortable temperature. The thermostatic trap valve permits the condensation to leave the radiator, but does not allow the steam to escape into the return risers; when the steam comes in contact with the thermostatic element in the radiator trap, it expands and shuts the valve until the steam condenses, then opens, permitting water to flow into the returns.

Hot water systems of heating are rarely used for heating hotels. It is an excellent system to install in residences, but the disadvantage is the possibility of the pipes freezing up if the fire in the boiler is allowed to go out. The hot water system would hardly do for a hotel, since some guests like to sleep with their windows wide open, winter and summer, and on a very cold night there would be the possibility of the radiator in such a room freezing up and

cracking.

The Two Pipe, Vacuum Return System is about the best to install in a hotel. This system is the same as the open-return system with the exception that a vacuum pump is installed in the return system instead of the alternating receiver. This system heats up very rapidly, due to the vacuum maintained in the return mains and risers. There are also various high vacuum systems where a vacuum is created throughout the system. The advantage is that the steam under a certain vacuum can be anywhere from 180° to 212°, resulting in a saving



Detail Showing Radiator Branches in Floor Fill

of steam, but this type of system must be absolutely tight to prevent any air leakage into the system. There are many makes and types of radiator valves and traps. The supply radiator valves may be either packless, modulating type with indicator plates, or the quick-opening, packless type; either type can be furnished with lever handle or wheel handle. The radiator return traps are either of the disc type, the metal bellows type, or the expansion type. The radiators used in a hotel are usually cast iron, plain pattern, of the new tube type.

New Type Radiators. Fantom type radiators are frequently installed in bedrooms where metal windows and sills are provided, and hung on special hangers from window sills. Where wooden frame windows are used, the tube radiation is often installed, either legless and hung under sills, or the leg type radiation set on cement bases extending about 1 inch above the finished floor. This cement pad allows the carpet to finish around it. Fin radiation is also sometimes used under window bulkheads in stores and shops in a hotel, with a grille located on the face of the bulkhead; and the radiator enclosure is lined with galvanized iron and asbestos board. Wall type radiation is frequently used on ceilings of basement rooms requiring heat, and also in toilet rooms having high window sills, and sometimes in house tank rooms on the roof, instead of pipe coils, and where space conditions are limited, such as on stairways, in corridors, etc.

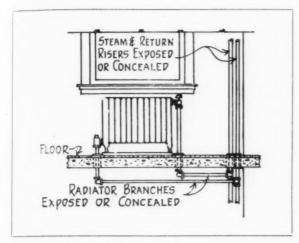
Radiator Location. In placing radiators, the usual practice is to locate them under windows, but in some hotels, to save expense, radiators have been placed at side walls near windows and close to risers. This arrangement permits a higher radiator to be used, a type which is less expensive than a low radiator, and it saves considerable piping for radiator branches, as the

radiator is located nearer the risers. However, it may interfere with furniture.

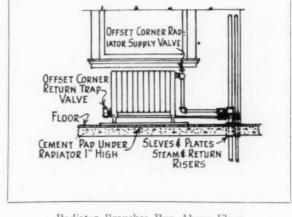
Vestibules. In vestibules concealed radiation is installed, as these entrances are in most cases provided with revolving doors that prevent excessive air leakage. In some of the larger hotels, a small hot blast system has been installed in vestibules, the system consisting of a fan, motor heater, connecting duct work and registers, and arranged so that air is re-circulated and heated from about 60° to 100°, and discharged into the lobby, thus creating a slight pressure and preventing a large influx of cold air and heating up space very quickly.

Baths. The bathrooms are frequently heated by means of fin radiators, having metal covers, with enameled finished baked on, and the radiators are located under traps from lavatories. These small radiators are of about 3½ square feet of radiation each. The advantage of using this type of radiators is that they are light in weight and do not require radiator hangers and are supported by the pipe connections to the radiators. The risers for the bathroom radiators are run in pipe shafts for plumbing pipes, and the radiator branches run in the furred ceiling of the bathroom below, as the bedroom floors are typical and the bathrooms are located typically one above another. The branches to a bathroom radiator should be arranged to come out through the side wall of the bath instead of through the floor, as openings in the floor, if not tight, will permit water leakage through floor. sleeves to the room below when mopping the floor of the bath.

Radiators, when placed against side walls and under windows, should be provided with metal covers on top to prevent the wall above the radiator, and window curtains, from becoming soiled by dust. Where fantom radiators are used and



Radiator Branches on Ceiling Below



Radiator Branches Run Above Floor

located under windows, with a metal window sill projecting over, the metal sill should be solid and not perforated, the top of the radiator being located about 1 inch below the lowest point of the sill to allow for circulation of air. This method will prevent dust's collecting on the curtains and draperies of the windows, and they will not require as frequent washing as with the perforated sills. Consequently, they will last longer. There are various types of radiator covers, and some have marble tops and water pans to moisten the air, if required.

Figuring Radiation. In figuring exposed radiation, the usual allowance in B.t.u. losses are made for wall, glass and air leakage, and other exposures, such as roof, etc., and percentages are added for exposure, such as for north, west, etc. Allowance should also be made for bathroom's exhaust ventilation in figuring the radiation for a bedroom. For fantom type radiation enclosed on sides, top and bottom, 8 to 10 per cent should be added to the square feet of radiation required in a room; for enclosed radiation 25 per cent should be added to the amount of radiation required in a room. The front and top grilles for an enclosed radiator should be at least 12 inches longer than the radiator, and the grilles should be provided with access doors for reaching valves on radiators. The supply valve on an enclosed radiator should have an extension spindle to face or top of enclosure for easy operation of the valve.

In figuring the amount of direct radiation required for a store or a vestibule, from 25 to 50 per cent should be added to the radiation to allow for excess air leakage every time outside doors are opened, where revolving doors are not used. Where a hot blast system is used to heat a vestibule, the amount of heated air required and the final temperature of it must be

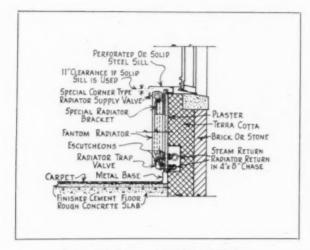
determined in designing this type of system, based on the heat losses for these spaces.

Direct-indirect radiation is rarely used in hotels, but unit ventilators are sometimes used for ventilating various spaces, such as ball rooms, convention halls, club rooms, etc.

Piping. Steam and return risers may be either run exposed or concealed in the bedrooms. In lobbies, etc., they are run concealed. Risers are generally located at columns, and where concealed, are furred. If risers are run exposed, they may be either bare pipe and painted, or covered with asbestos, and the pipe covering protected with a galvanized iron casing, about 7 feet high. The radiators in the lobby, writing rooms, lounges, dining rooms and similar spaces are generally concealed, as these are finished rooms. The radiator enclosures are provided with front or front and top grilles, or a grille in the sill. The fronts of radiator enclosures should be made removable, or if a large grille is provided in the front of the enclosure, it should be large enough so that the radiator could be removed through it in case of its needing repairs. This also applies where a small grille is provided in the front and a grille in the sill. The latter grille should be large enough so that the radiator could be lifted out through the top of the enclosure.

Radiator branches may either be run from risers to radiators above the floor, exposed, or in floor fill protected with U-shape galvanized iron covers, or exposed on the ceiling below, or they may be furred in over window heads, or run in a horizontal pipe chase back of the baseboard in bedrooms. The method of running the radiator branches is for the architect to determine. The radiator branches for radiators in lobby, dining rooms, etc., are usually run in the floor fill.

The medium pressure steam and high pressure

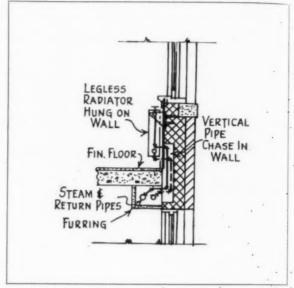


Hung Radiator with Metal Window

steam piping should be covered with 85 per cent magnesia covering, and re-canvased; the low pressure, steam returns and drip piping covered with air cell covering. The steam and return risers are usually covered with ¾-inch thick covering, the radiator branches with ½-inch thick covering, and the mains with 1-inch thick covering. The boilers, smoke brushing and hot water tanks should be covered with 1-inch thick 85 per cent magnesia blocks wired on over a 1-inch air space, and ½-inch coat of asbestos cement applied over blocks troweled to a smooth finish.

Boilers. Various types of boilers are used, depending on the service required. In a small hotel, without a laundry, and with the kitchen using gas instead of steam, low-pressure, cast iron sectional boilers are installed to heat the building and for hot water supply, thus saving excavation. In a larger sized hotel, having a laundry (which requires steam at from 80 to 100 pounds pressure) and a kitchen (which requires steam at from 30 to 40 pounds pressure), water tube boilers or fire tube boilers are usually provided, built for 100 pounds working pressure. Many new hotels are installing electric generating plants, also steam-driven refrigerating plants, as the exhaust steam from the engines, ammonia compressors, pumps, etc., is available to heat the building in the winter, for heating the water required for the hotel, and for heating the boiler feed water. As a hotel with a laundry requires steam at from 80 to 100 pounds, the steam electric generating plant can also be operated at this pressure, and where rates are high, a hotel with its own plant can often generate electricity more economically than it can purchase it.

Boiler grates are generally furnished to burn buckwheat coal, and in some cases soft coal or run of mine coal, in which case they are provided with forced draft and automatic stokers.



Method of Concealing Radiator Branches

The type of coal burned depends on the location of the hotel, the grade of coal, and the price obtainable. In some locations, the boilers are arranged to burn natural gas. A fair sized hotel will require about from two to three 200horse power boilers, and will require a ceiling height in the boiler room of about 20 feet. The sizes of the boilers depend on the steam required for heating, ventilating, hot water supply, kitchen, laundry, etc. In smaller hotels it is usually customary to install two boilers, both built for 100 pounds working pressure, the smaller boiler being a sufficient size for kitchen and hot water supply, and the larger size boiler having sufficient capacity for the total steam requirements. It is an advantage to have a spare boiler in case one boiler breaks down.

Where low-pressure boilers are installed and the heating system is of the vacuum type with vacuum pumps, it is desirable to install a small summer steam boiler for hot water supply. The hot water heater should be cross-connected with the large boilers and the small summer boiler. and the drip from the heater cross-connected to the vacuum return, and to the summer boiler return, and provided with a quick air vent. This is desirable so that the heater may be used without its being necessary to operate the vacuum pumps in the summer. In some hotels the owners want separate steam mains to radiation in public spaces and stores, so that steam may be shut off in the bedrooms during the night, but will be available in the public spaces.

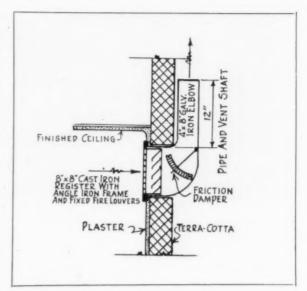
**Ventilation.** The hotel generally needs supply and exhaust ventilation in all spaces in the basement, in the lobby, main and private dining

rooms, ball rooms, convention halls, bathrooms, private offices, cafeteria, coffee shops, etc. Very often, however, when the hotel is rented to an operating company, the management does not operate the complete ventilating systems because it costs too much for the steam and electricity required. The result is that they operate only the kitchen exhaust system and the bathroom exhaust system. In one hotel the firemen were using the air washer for a coat closet, and the engineer had disconnected the air washer pump and was using it for another purpose.

In designing an economical ventilating system for a hotel, supply and exhaust ventilation is provided for the barber shop, boot black room, billiard room, public toilets, and other public spaces in the basement. Exhaust ventilation is provided in the main kitchen, cafeteria kitchen, serving pantries, main dining room and lobby; and exhaust ventilation is provided for interior bathrooms.

Kitchen Ventilation. In the kitchen, which should have outside windows and skylights, exhaust ventilation is taken out through the range hood, dish-washing machine hood, coffee urn hood, and from over bake oven and pastry stove. From 20 to 30 air changes should be provided per hour depending on the size of the kitchen and the kitchen exhaust fan, located in the fan room and on the roof over the kitchen. In some kitchens, fresh air has been provided in front of the ranges by swivel outlets, but in many cases the chefs have blocked up the fresh air openings as they object to the drafts. A perforated steam pipe must be located in the range hood so that steam can be turned on in case of fire in the hood. and the kitchen exhaust fan should be provided with an electric thermostat to shut off the fan in case of fire in the flue.

Public Room Ventilation. If supply and exhaust ventilation is to be provided in the lobby, etc., the supply should be taken into the room at about 7 or 8 feet above the floor (depending on the ceiling height), and some exhaust be taken out near the floor and at the ceiling (for smoke), and the registers arranged in these rooms to get a good distribution of the air. Ball rooms and convention halls should be provided with both supply and exhaust ventilation on separate systems, the fans being located in fan houses on the roof above these spaces. The supply registers should be located on the side of the room where the windows are located, about 7 or 8 feet above the floor, and the exhaust registers located opposite the supply registers, some near the floor and some in or near the ceiling. This arrangement will permit the exhaust system to be operated alone in the summer time



Vent Register for Interior Bathroom

when the windows may be opened for ventilation.

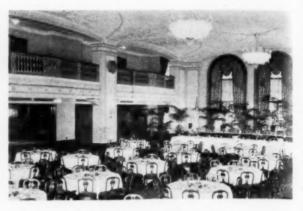
Boiler Room Ventilation. The boiler room in a small hotel is not usually ventilated, but there is an ash hoist shaft provided to the sidewalk level which is ample to ventilate a small boiler room. In larger hotels, forced draft is provided for the boilers, and the air is taken from the boiler room for this purpose. The air supply is through either openings or windows to outdoors or through the ash hoist shaft. Where steel smoke stacks are installed within a masonry enclosure, the space between the stack and enclosure is open at the top and bottom and this space can be utilized also for ventilating the boiler room. A hood placed over the top prevents the rain from coming in. Engine rooms should be provided with both supply and exhaust ventilation, the supply registers located on one side of the room and the exhaust ventilation registers located over engines (which give off considerable heat) if possible.

The basement floor, where below grade, is not usually heated (with the exception of barber shops, public toilets, etc), as the heating mains located at the ceilings of these spaces give off considerable heat, but plugged outlets can be provided in mains so that wall type radiation or pipe coils can be installed on the ceilings of these spaces at any time, if required.

Ventilating Interior Baths. The interior bathroom is usually ventilated by means of a register located near the ceiling, connecting to a galvanized iron elbow having a friction damper and turning up 12 inches in pipe shaft. The bathroom registers must be provided with fixed fire louvers, and the tops of the pipe shafts are connected by ducts to the bathroom exhaust fan



Necessary Exhaust Ducts over Kitchen Range are Shown in this Hotel at Concord, N. C.



Supply Grilles under Mezzanine, Exhaust Grilles in Ceiling, Lord Baltimore Hotel, Baltimore

suction. The bathroom exhaust fan is usually located in the fan rooms provided under the house tank. Slots or grilles are provided at the bottoms of the bathroom doors, to allow circulation of air through the bathrooms. The best practice is to install galvanized iron vent flues in pipe shafts connecting to each bathroom register, and connecting these flues to the horizontal duct work in the attic space of the bathroom exhaust fan suction, as the masonry shafts in many cases are not tight, and with elbows turning up in shafts, they catch all the mortar, plaster, dirt, etc., dropping down the shaft from above.

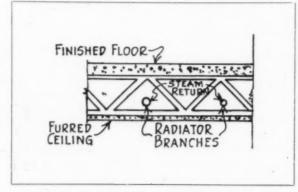
Ventilating Equipment. Fan and motor foundations should consist of yellow pine frames set on cork blocks to prevent transmission of vibration to the building structure.

The fresh air intakes for fans can be taken in at any areaway or window, or from any roof or court convenient, the supply fans being located in the basement. The discharge from exhaust fans may be carried to any convenient point, but should not discharge near any window in guest rooms or near the fresh air intake. The exhaust fans may be located in the basement or on roofs where convenient. The

supply ventilation system should have air filters, of easy cleaning type, and also an air washer. Tempering and re-heater stacks may either be cast iron, vento type, or fin type.

Temperature regulation should be provided in connection with the ventilating system, as well as for direct radiation in all public spaces. Direct temperature control valves may be installed on the direct radiators where required.

In some hotels 18 or 20 stories high, where the stairways open into a main lobby without any doors closing off the stairway, there will be considerable draft in winter if these stairways open at the top to the outside air or if the door to stairs at top floor is opened and windows on top floor open. The stair halls act like a large asperating flue, and there would be considerable air leakage into lobby, etc. Doors should be provided at the bottom of each stair hall to prevent these drafts. Ceilings over boiler rooms and engine rooms should be insulated with 85 per cent magnesia blocks. Ceilings over kitchens in southern hotels where the ceilings are about 12 feet high, and the sun shines on the roofs practically all day, should be insulated to prevent the summer's heat from becoming unbearable.



Radiator Branches are Easily Accommodated in Steel Joist Construction

## MODERN HOTEL LIGHTING

BY

A. D. BELL

ELECTRICAL ENGINEER

AMONG the many refinements which characterize the well equipped hotel there is adequate and satisfactory artificial illumination. It serves not only for convenience, comfort and beauty but many operations of the heating plant, the laundry, the kitchens and other places are absolutely dependent upon it, as these areas are frequently cut off from all daylight. On account of their diversity of purposes the areas of a hotel logically fall into three sections; viz., guest rooms, public areas, and working spaces.

The Guest Rooms. While in general the guest room is used in the same manner as the bedroom in a residence, it must also serve at times as a living room, writing room, and office. The first requirement is a medium level of general illumination for the entire room. A central semiindirect fixture or an enclosing globe is in general sufficient for this purpose, controlled by a wall switch near the entrance door. Many hotel operators prefer to have this switch operate a small light near the room entrance, so that when two persons share a room the one coming in late will not flood the room with light and so disturb one who may have retired. A local dresser light is essential, either suspended over the dresser or connected to a baseboard convenience outlet, and using in most instances 40- or 50-watt lamps. A bed light with a metal or fabric shade is a desirable feature, and it will generally reguire a 25-watt lamp. A floor or table lamp attached to a baseboard convenience outlet and a light for writing should be considered. The well appointed guest room has a light in the closet,

which is a great convenience. Either the automatic door switch or the pull chain may be satisfactorily used for its control. The hotel bathroom is generally lighted by means of a pear-shaped glass reflector, the unit being placed directly over the lavatory mirror. This arrangement provides illumination for shaving and also for the whole room, but a light on each side of the mirror is better, although not often found. A fixture that provides a receptacle for electrical appliances, such as curling irons, vibrators, etc., is a great convenience.

For parlors or living rooms in connection with the guest rooms, a central ceiling fixture controlled by a wall switch is often found. Semi-indirect illumination is excellent, although other types of fixtures may be entirely satisfactory with one or more floor or table lamps. Many hotels have their larger guest rooms equipped to function as sample or display rooms in addition to the regular sample rooms. In rooms of this type, enclosing glass globes, spaced symmetrically on centers from 8 to 10 feet apart, employing about 2 watts per square foot of area, make a satisfactory installation. Convenience outlets with adequate capacity are also necessary.

Public Areas. In the lobby, dining rooms, mezzanines, etc., the accepted ideas on lighting are certainly quite different from those of a decade ago. The so-called "modernistic" lighting is being very extensively employed, and in appearance at least it is quite different from the "period" fixtures widely used previously. The period fixtures, while beautiful in a decorative sense, have

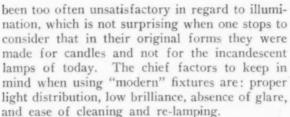




The Guests' Rooms Need a High Standard of Illumination with Lights Properly Placed. Bedroom Shows Central Semi-indirect Ceiling Fixture and Separate Lights for Dresser, Desk and Bed Table



Modern Lighting Fixtures of Frosted Glass Panels. Central Fixture Equipped with 13 25-Watt Lamps



The Lobby. The lighting equipment desirable for the lobby is determined largely by the type of hotel. It is the point of contact between the hotel management and the public, and may serve as an office, lounge, reading and writing room. In smaller hotels and those of the residential type all of these facilities are provided in the lobby. Enclosed glass globes with or without decorations, or semi-indirect reflectors are satisfactory for a lobby of this character. For enclosing globes, from 1 to 1.6 watts per square



Informality and Comfort in a Grill Room, Lighted by Lanterns, Each Having a 40-Watt Lamp



Writing Room with Modern Fixtures for General Lighting. Ceiling Fixtures have 100-Watt Lamps

foot may be figured; for semi-indirect fixtures, 2 watts per square foot. Occasionally wall brackets are the chief sources of general lighting, being supplemented at times by suspended fixtures of the candle type. Such a scheme is fairly satisfactory, provided that all lights are shaded. Plenty of floor and table lamps for reading and writing are absolutely necessary, however, as the general level of illumination will be low.

For the larger lobby there are many methods of suitable illumination. Artificial skylights, cove lighting, suspended fixtures of the candle type, indirect or enclosing globes may be used. There is a choice of the older forms of fixtures or the modernistic. In any event, adequate provision for floor and table lamps should be made for reading. For the actual illumination the necessary wattage should normally range between 1 and 3 watts per square foot. Adjoining the lobby are the offices, where it is advisable to provide about 12 foot candles to facilitate accurate work. Semi-indirect or enclosing globe fixtures are desirable, the former requiring from 3 to 4 watts per square foot, and the latter from 2.5 to 3 watts per square foot. The offices of the cashier, bill clerk, etc., should in addition have local units along the front upper edge of the grille, as in a bank, with the light directed on the counter.

Dining Rooms. In this division of the hotel a variety of types is encountered, ranging from the lunch counter to the formal dining room. For the lunch room, coffee shop and cafeteria and dining places of a similar character, the illumination should be of a much higher level than in the main dining room, grill room and the like. For the former, enclosing globes or semi-indirect fixtures of a simple type are excellent, allowing



Dining Room Having Chandeliers and Brackets of the Candle Type. Local Table Lights are Provided



Hotel Roof Garden. Glass Panels of Skylight Give a Variety of Color Effects by Using Several Circuits

from 1½ to 2 watts per square foot for adequate illumination. The main dining room requires, first of all, a medium level of general illumination. This should be evenly distributed, and it may be provided by many different schemes. In any event local lights are desirable for the tables. In the grill room also the illumination should be of subdued variety as the guest there, too, is inclined to take time and accordingly enjoy the surroundings. Lighting fixtures appropriate to the architecture of the individual grill room will give to it a much more attractive appearance, such as is the case of a room with dark beamed ceiling where fixtures of the lantern type give the idea of the old time tavern. Supplementary illumination by means of wall brackets is sometimes desirable when the ceiling is low. A wattage of from 1.5 to 2 watts per square foot should be provided.

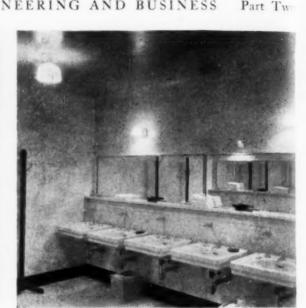
Roof Garden. This is mainly a place for seasons of warm weather only, and as it will be patronized for dancing as well as dining, it requires an atmosphere of festivity and freedom. Colored lighting effects may be employed, and novelty is a desirable feature. Enough outlets with a wiring capacity of at least 4 watts per square foot should be installed to allow for future equipment. Pendent lighting fixtures are sometimes used, but more often more elaborate schemes are provided, such as artificial skylights, recessed glass panels, or false ceilings of colored textiles with lights behind them. Special lighting effects for the dance floor are often obtained by special apparatus such as is employed in the theater. Similar lighting effects may be well employed in the main dining room and grill room in case there is the possibility of dancing there.

Ball Rooms. The hotel ball room is used for a wide variety of purposes, from a formal dance

or amateur theatrical to an automobile show, and therefore special lighting service must be provided. Central ceiling fixtures are satisfactory for general lighting purposes, and well shaded wall brackets to match give additional illumination. From 2 to 4 foot candles gives an adequate level of illumination for general purposes. In planning the wiring a large number of convenience outlets should be provided, so that the lighting for booths, etc., can be connected. It is well to run in heavy feeders terminating in a special service box for temporary installations. On the balcony and on the main floor standard stage pockets of high capacity prove most convenient for spot and flood lamps. With the ever-increasing use of colored lighting as an element of decoration, it is well to keep in mind the possibility of such effects, and to provide sufficient wiring capacity.



Soft, Restful Lighting is Provided in this Hotel Lounge by Using Chandeliers and Wall Brackets of the Candle Type



Good General Illumination is Needed in Lavatories, Supplemented by Local Lights over Mirrors

The Hotel Kitchen Demands a High Level of Illumination and Efficient Lighting Units

Lounge and Writing Rooms. Soft, well diffused illumination of a medium level is desirable, and light sources in any way glaring are to be avoided, for the guest is inclined to sit in such a place, and will notice objectionable light sources more quickly than in the lobby where there is more motion. In the writing room, the fixtures for general illumination may be similar to those used in the lounge. Small desk lamps should be provided, however, for local lighting of the desks.

Working Areas. The successful management of a hotel is due in a large degree to the proper functioning of many departments which are seldom seen by the guest. Too frequently a miscellaneous arrangement of bare lamps in ceiling sockets or on drop cords supplies the only illumination. Glaring, brilliant light sources are annoying to everyone and lower the efficiency of the chef, porter, maid or other employe.

Kitchen and Bakery. From the very nature of the work performed, these areas may be considered miniature industrial plants where quality is ever demanded at top speed. Adequate lighting allows for better supervision and preparation of food and promotes smoother and more efficient operation. Dome reflectors with white bowl lamps will provide excellent general illumination. Durable reflectors are often employed. Spacing of outlets on approximately 10-foot centers is good practice, allowing from 1.5 to 2

watts per square foot. To illuminate the ranges it is advisable to install a row of lamps on 2- to 3-foot centers along the inside front edges of the ventilating hoods.

Laundry and Tailor Shop. For the operation of washing machines and extractors a system of localized general illumination is satisfactory. Dome reflectors spaced on centers of from 8 to 12 feet will in most cases prove satisfactory. Flat work ironers generally require a localized light at both the feed and delivery ends. With ceilings from 12 to 14 feet high, diffusing fixtures mounted from 11 to 13 feet from the floor should be provided. The exact layout will depend on the arrangement of the ironers, but from 7 to 10 foot candles should be provided. Hand ironers will require a close spacing of lighting units, as this work needs a higher level of illumination. In order to detect stains, scorching, etc., in the different operations it is often advisable to employ daylight blue glass, as the resultant light will be more white in color.

Wiring. In order to insure adequate capacity for extra current loads and future development, the wiring system in a hotel should be considerably greater than for immediate demands, as many buildings today are prevented from employing modern lighting and electrical equipment because of the wiring's being of insufficient capacity to carry the required loads.

# CONSIDERATIONS IN THE SELECTION OF ELEVATOR EQUIPMENT FOR HOTELS

ROGER B. WHITMAN

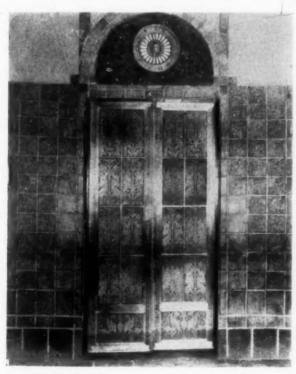
WHILE the most evident need for elevator equipment in a hotel is the quick and convenient transportation of guests, it is quite as essential from the management's point of view to provide for swift restaurant, baggage and freight service throughout the building, for the distribution of incoming supplies, and for the removal of waste. The equipment will usually fall into two classes,-elevators running the height of the building for passengers and for service, and the more specialized elevators and hoists that operate from sidewalks to basements. The placement of these in relation to their duties and their operating costs will have a direct effect on the attitude of guests and on the success of the hotel, and for this reason the plans for their installation should be subject to the advice of the manufacturers of the equipment selected.

Relation of Service and Costs. Passenger elevator equipment should be capable of the speedy handling of full capacity traffic. This, however, must be balanced against limitations in floor space, investment costs, and cost of operation, that the fixed charges and loss of paying floor area may not be excessive for the service that is rendered. The equipment must therefore

be considered from two points of view,—the favorable impression to be made on guests by quick and convenient service, and from the standpoint of the management, costs of investment, operation and maintenance. Both are affected by recent improvements that substitute mechanical and automatic operation for fallible human control, travel becoming more comfortable and capacity being increased.

Losses Through Manual Control. Speed in elevator service will be reduced, and motion will be jerky with slow approach to a stop, failure to bring a car to an immediate stop at floor level, coming to a stop before opening the doors, and delay in starting and in acceleration. To the elderly, the ailing, and to those to whom elevator travel is not a matter of course, such irregularities will be a cause for apprehension and will create an unfavorable impression, while to the management they represent losses of time and added expense. Even with expert operators they will be present in greater or lesser degree, and they can be eliminated only through the precision of mechanical control. These new devices should therefore be given full consideration.

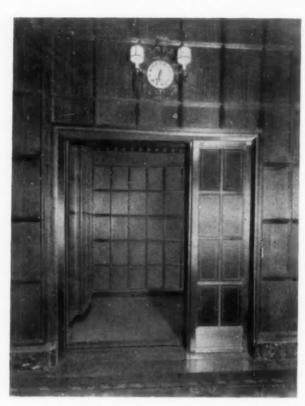
Devices for Mechanical Control. The basic



Elevator Doors, Cosmopolitan Hotel, Denver William H. Bowman & Co., Architects



Elevator Doors, Book-Cadillac Hotel, Detroit Louis Kamper, Architect



Elevator, Hotel Statler, Boston George B. Post & Sons, Architects

improvement is the automatic stopping of a car at floor levels, the action being so sensitive that there will be an immediate re-leveling of a car that sinks under the loading of great weight. The car travels at full speed until within the range of this mechanism, when de-celeration and stoppage occur smoothly and without jerking. This effect being assured, rapid unloading becomes possible through automatic operation of the doors, which begin to move during the last stages of leveling and are fully opened as the car stops. The doors are closed and the car started by the throwing of a switch by the operator. The pressing of an outside button stops the first car to approach in the desired direction, with no coöperation from the operator and without his knowledge that the stop is to be made.

Effects of Mechanical Operation. A hotel elevator is usually controlled by a lever in the car; but as hotels increase in height and area the elevator service demands become more nearly approximately those of office buildings, with the result that consideration is given to use of automatic types of operation. With this automatic form of control, the operators merely press buttons in the car to indicate the floor stops and initiate the closing of the doors. These close automatically, the elevators start automatically, and then stop automatically at all floors for which buttons have

been pressed, either in the car operating panel or by waiting passengers on the floors. This automatic operation, with its self-leveling feature, permits much higher car speed than could be obtained with manual control, 700 feet a minute being usual and 1,000 feet a minute quite possible.

Unattended Elevators. Through further application of these devices, increasing use is being made of unattended elevators, the operation of the control buttons being by the passengers themselves. In earlier construction, an elevator in motion would be unaffected by other signals, would-be passengers desirous of traveling in the same direction being obliged to wait for service until the trip had been completed. Control is now so arranged that the elevator responds to these intermediate signals, with a saving of time, of power, and of wear. The control can be so arranged that a car on being emptied will automatically take station either at the top or the bottom of the shaft. Thus when travel is downward, the elevator on completing a trip will return empty to the top floor, that the next call can be answered in minimum time, while for upward travel its station will be at the ground floor.

When the size of the building requires two elevators, their controls are so coördinated that during periods of light traffic only one will be in operation; but should this be in motion when there is a further call, the second will automatically come into service and continue in action until demands are within the capacity of one elevator.

Unattended Elevators for Hotels. While unattended elevators are of proved reliability, they are practicable only when their users become as familiar with them as will be the case in a small residential hotel. For hotels with any proportion of transient guests, operators will be needed.

Service Elevators. The requirements in service elevators will depend on the separation between kitchen and dining rooms, the need of restaurant service in guest rooms, and similar conditions. In type, speed and capacity these elevators should be the same as for passenger service, the only difference being in finish of cars.

Sidewalk Elevators and Hoists. When sidewalk elevators are necessary for handling baggage and supplies, they will be of the standard types that have long been perfected. For the discharge of ashes, however, special hoists have been devised with the object of delivering ashes directly to the truck and so avoiding the setting of ash cans on the sidewalk and the need for labor in their further handling. While elevators and hoists for these uses concern solely the management, their convenience and costs of operation will have an effect on the general business of the hotel, and they should not be installed without careful study and a full understanding of the requirements.

#### VACUUM CLEANING OF HOTELS

BY A. LINCOLN SCOTT

NE of the vital cost problems in hotel operation today concerns the tremendous cost of carpet replacements. Approximately 1,500,000 yards, or \$4,000,000 worth, of carpet is used each year by the hotels of this country to replace worn out material, and the average depreciation of carpets in hotels is 25 per cent per year. In view of these facts, it is obvious that the architect, in planning a new hotel, must give considerable thought to the method to be used by the hotel for purposes of carpet cleaning, as the method of cleaning and the state of cleanliness are two of the most important items regulating the length of time that a carpet will last, second only to traffic

Inquiry among architects and engineers shows a very decided lack of authentic data on carpetcleaning methods and, due to this fact, many hotels are designed and built without adequate cleaning systems. This mistake costs hotels of the country fabulous amounts each year, due to having to operate with inadequate equipment and by inefficient methods. A great deal of attention is given to the item of plumbing because it is recognized that it is difficult and costly, when once a building is completed, to make changes in its basic structure. This should also hold true in selecting the vacuum system to be used, as it is impractical to install a satisfactory system once the building is finished.

There are three types of equipment for vacuum-cleaning carpets,-the portable cleaner; the semi-portable cleaner or truck type machine, and the central or installed plant. By the portable type is meant the very light-weight machine in which the cleaning nozzle is attached to and is part of the machine and where the dirt passes into a bag which is fastened to the handle. This equipment is commonly used in homes, although many hotels are endeavoring to use it due to the fact that they have no other equipment. The domestic type cleaner is satisfactory when applied to service for which the machines are designed. Such light apparatus is not adequate when confronted with an eight-hour duty six days per week throughout the year. The portable machine is obviously too light for hotel service, the cost of repairs, maintenance and replacements being large, and the cleaning generally unsatisfactory when applied to hotel usage.

The semi-portable machine is the heavier type which is mounted on a truck equipped with wheels. With this type the cleaning is done by a separate tool and with varying lengths of hose.

With building costs at the present-day high level, naturally the architect is interested in eliminating as much expense as possible, and it is because of this fact that a truck type machine sometimes is selected for a new hotel. When new, and kept clean, properly oiled, and up to its best possible mechanical efficiency, this machine is capable of doing fair work in hotel carpet cleaning. Difficulties arise due to the great care that the machine requires and to the fact that it is generally operated by housemen receiving about \$20 per week with no knowledge of mechanics. The truck type machine is used a long way from the central power system, and, naturally, multiplying the number of machines over the house is costly and multiplies the opportunities for their neglect and consequently poor cleaning and waste of carpets. The truck type machine is thus frequently costly to maintain and operate.

Central System. The only remaining type worthy of consideration is the "central" or installed plant. This system consists of a vacuum machine together with a dirt separator or separators located in the basement of the hotel and connected to a piping system which extends throughout the building with outlets so located as to permit cleaning men to reach all parts of the building with convenient lengths of hose and cleaning tools. The cleaning principle of all systems of this type is that of an inrush of air at high velocity into the tool, which is caused by the air exhauster in the basement, creating and maintaining a sufficient vacuum throughout the piping system. The cleaning is done by passing the cleaning tool forward and backward alternately over the surface. The central system is dependent for cleaning entirely on the maintenance of a proper vacuum at the tool end at all times and in every part of the building. Therefore, no matter how good may be the machine in the basement, its cleaning efficiency will depend entirely upon the piping system being installed of proper size, and the architect should be very particular in outlining the specifications in this respect.

The advantages to the hotel operator of the architect's specifying an adequate central system are many. In the first place, all the machinery in connection with the system is installed in the basement under the expert care of the engineer in charge, and the people doing the actual cleaning do not come in contact with it at all. Secondly, all the dirt is carried automatically to the basement where it can be disposed of expeditiously without the inconvenience of hauling it from the various



Special Tools Are Needed for Various Types of Cleaning

floors. In the third place, the foul air is discharged into a flue and out of the building. This is a decided advantage, inasmuch as a room can be cleaned and left in perfect condition after vacuuming without even the necessity of opening the windows and, most important of all, is better cleaned, more quickly cleaned, and more economically cleaned. Of course, architects are confronted continually with the naturally higher cost of installation of the central system, but the extra initial expense will certainly pay for itself many times over.

Central vacuum cleaning systems are designated in sizes as one-sweeper plants, two-sweeper, etc., showing number of cleaning tools that may be operated at one time with proper cleaning efficiency. In hotels of less than 125 rooms, an architect should specify a one-sweeper capacity plant. For larger hotels, having a sweeper for each 100 rooms is generally a satisfactory rule to follow for average requirements. This rule, however, may be modified to meet the needs of unusual circumstances.

There are several central systems being marketed at the present time, so this article will outline the most important items to be considered and covered, regardless of the make of apparatus. A central system may be divided into these important parts, and it will be necessary for the architect, in establishing his specifications, to give considerable thought to each of these items:

- 1. Vacuum producer.
- 2. Motor,
- 3. Separator,
- 4. Piping system
- 5. Inlet valves,
- 6. Hose,

7. Cleaning tools.

Vacuum Producer. In considering the vacuum producer, the best type is the self-governing type. capable of operating simultaneously the required number of sweepers, and it should be constructed with clearances of not less than 1/8 inch throughout to avoid injurious wear from dust or dirt. Apparatus operated at a speed not to exceed 1800 r.p.m. is very much preferred, particularly for large hotels, and although somewhat more expensive at first cost, it is cheaper in the long run than higher speed equipment which naturally depreciates more rapidly and causes more trouble. To avoid excessive vacuum at outlets near the machine, or where less than the full number of sweepers are in use, the vacuum at the machine must at no time exceed 7 inches of mercury. No auxiliary governing devices of any kind whatsoever should be permitted. The bearings should be of the self-oiling type and should operate under maximum loads and speed without undue heating.

The motor should be mounted on or by the vacuum producer and directly connected thereto, and, if direct current is to be used, it should be of the commutating pole type with slotted commutator, preferably General Electric, Westinghouse, or whatever the architect considers equally as good. The motor should be of ample size and

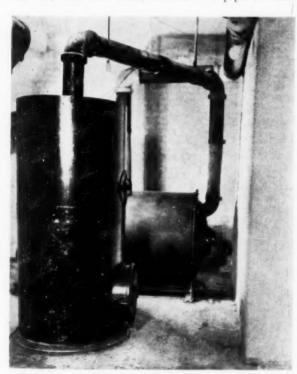


Proper Equipment Simplifies Such a Difficult Problem as Cleaning Under Beds with Minimum Effort

be capable of running at full load for two hours without undue noise or vibration.

The separator or separators should be of the dry type and constructed of steel. They should be provided on the pipe lines in the basement at or near the vacuum producer and should be capable of separating 95 per cent of the dust. No cloth bags or other appliances liable to rupture by the air currents should be permitted in the separators, and construction should be such that no part will receive the direct impact of the dust.

The piping system should be such as to operate the required number of sweepers simultaneously and should be in accordance with the standard recommendations of the manufacturer of the equipment to be furnished. The piping should be of black mild steel or wrought iron, and all fittings should be of the long-turn recessed type except where it is impossible to get them into the available space, in which case, short-turn recessed fittings should be used. Use of steam, gas or water fittings should not be permitted. In cases where the piping is below the receiver and dirt must be drawn up, long-radius pipe bends (similar to electrical conduit) should be used instead of elbows. All pipes should be smooth inside and be reamed to full inside diameter, removing all burrs, or any other projections that would catch dirt, lint, or the like, and all pipe should be screwed "home" in the fittings so as to leave a smooth, uniform bore; all ends of pipe to butt



All Dirt Accumulates in this Tank of the Central System of the Paramount Hotel, New York



Drapery is Effectively Cleaned by Using a Broad Brush Tool

where couplings are used. Easily accessible, horizontally disposed clean-out plugs should be placed at the bottoms of all risers, and at the end of every long horizontal run. The contractors should should be compelled to leave the face of the fitting back from the finished face of the wall or floor from 34 inch to 1 inch. Failure to do this should entail on the piping contractor any extra expense involved in making this part of the work acceptable. Approved pipe hangers should be substantially installed and should be located as near together as 10 feet. Exposed pipes, where they pass through a finished floor or wall, should be provided with nickel-plated floor or ceiling plates. Exhaust pipe should be connected to a chimney or flue without other openings above the basement. The piping contractor should provide and permanently install, at a point as nearly as possible over the center of the machine, a ring or beam clamp of sufficient strength to lift the machine to be used in setting it up in case of its needing repairs.

The inlet valves should be 1½ inch, so located in the building that any point can be reached with not more than 50 feet of hose, as anything above this is cumbersome and inconvenient to handle. These valves should be of the spring closing type with concealed springs of best quality and of such strength as to insure closing of the valves in any position. Valves should not project more than 34 inch from wall or baseboard.

The hose should be in 50-foot lengths, with a length for each sweeper that the plant is designed to operate. It should be 1½-inch steel reinforced suction hose to weigh not more than 14 ounces per foot. The hose should be equipped with clincher type rubber couplings with no metal exposed on either end to mar the floors, woodwork or furniture.

The cleaning tools should be of the best materials and workmanship with renewable wearing surfaces and with slots not less than 5% inch in width, and should be of the swivel type, controllable by the operator by turning the handle. All floor and wall handles should be of steel tubing, chromium-plated excepted those made of aluminum, which should be polished. All tools should be positively attached to handles, and under no circumstances should use of friction tape connections be permitted. Here is a list of cleaning tools which should be furnished for each sweeper that the plant is designed to operate:—

One floor handle with inside diameter not less than  $1\frac{1}{8}$  inch, equipped with elbow joint and

shut-off valve.

One wall handle in two sections not less than 11/8 inch inside diameter.

One 5-inch hand tool for upholstery.

One 12-inch carpet renovator with not less than  $7\frac{1}{2}$  square inches area of slot.

One 15-inch open end bare floor tool with replaceable rubber composition, or felt sides with not less than 8 square inches slot area.

One 8-inch hand brush and library tool.

One 4-inch round brush. One 15-inch wall brush.

I have endeavored to give, in discussing the various parts of a central plant, sufficient information to enable an architect to draw specifications suitable for all types of buildings. There is nothing contained herein that will abolish fair competition or make for excessive price.

After a survey of all of the first class hotels in New York, it was found that these houses, which are noted for their cleanliness and service, contain central installed vacuum cleaners, which come within the range of the standards herein outlined: — Paramount, Plaza, Savoy-Plaza, Sherry - Netherland, Biltmore, Commodore, Mc-Alpin, Pennsylvania, Roosevelt, Ambassador, Ritz-Carlton.

Test. The architect, in drawing specifications

for a central installed vacuum system, should insist that a test be conducted on the system, upon completion, known as the "orifice test." The vacuum producer must maintain a substantially constant vacuum under all working conditions and be capable of maintaining for each sweeper at the end of 50 feet of hose, not over  $1\frac{1}{2}$  inches in diameter, attached to any inlet valve in the building, a vacuum of not less than 2 inches of mercury while a round sharp-edged orifice  $\frac{7}{8}$  inch in diameter is wide open and a vacuum of not less than 3 inches of mercury while a round sharp-edged orifice  $\frac{5}{8}$  inch in diameter is open.

To determine if the apparatus meets the test described, one outlet for each sweeper that the apparatus is to operate simultaneously should be selected by the engineer making the test, to each of which should be attached 50 feet of hose of the size used with the system. In all of these hose, except one, should be placed a plate 1/8 inch thick with a 7/8-inch round, sharp-edged orifice through it. In the end of the hose where the test is to be made, there should be placed a hollow metal globe substantially 4 inches inside diameter, to the top of which should be attached a vacuum gauge and in the side of which should be a 7/8inch round, sharp-edged orifice. The vacuum gauge under these conditions must show not less than 2 inches of mercury. A similar test should be made using 5/8-inch orifice instead of 7/8-inch orifice, under which condition the vacuum gauge must not show less than 3 inches of mercury.

Contrary to impressions prevailing in some quarters, central cleaning systems are available and may be installed in the smaller and moderate sized hotels, as well as in larger structures. In many hotels of 100 rooms or even less, one finds the same efficient equipment that is found in the high class hotels of as many or even more than 1000 rooms. A centrally installed vacuum system is of great value in cleaning marble corridors, ball rooms, etc., and is also a great help in caring for upholstered furniture, as well as mattresses and pillows. Many hotels that I have been connected with have had special rooms where the chairs, mattresses, pillows and hangings were vacuumed at regular intervals.

As an engineer and a hotel manager, it is my personal opinion that a good, reliable and properly installed vacuum system is one of the most important and necessary features of any hotel.

# HOTEL LAUNDRIES

BY

#### CLIFFORD WAYNE SPENCER

N allotting space and equipment to the various departments of hotels it has too often been the custom to relegate the laundry to the background and force the laundry engineers to accommodate their layouts to whatever space happens to be left over, often greatly impairing the efficient operation of the laundry service. It should be quite evident that there is hardly a detail of hotel service that can react so decisively to the advantage or disadvantage of a hotel's reputation as the supply of clean linen. Hotel laundry does not require as much washing as general laundry, since it is usually only slightly soiled. The management of the hotel, by keeping direct supervision, is able to bring about an increase in the life of linen. Added to this saving there is the fact that it has been found very profitable to do guests' work.

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Space. The amount of space to be devoted to laundry purposes depends on the location of the hotel and the amount of service to be rendered. A hotel in a small town is not likely to have as many pieces of laundry per room as would a large city hotel, due to the facts that their dining room service is usually less; that they seldom have to provide for banquets; and that they usually do not have to provide linen for barber shops or beauty parlors. Inquiry should always be made as to just which of these departments is to be served with clean linen, and whether the personal work of guests is to be done by the hotel. The space may be estimated in a general way on the basis of so many square feet per room. Large city hotels supplying complete service launder about 30 pieces for each room and require from 7 to 10 square feet per room, while in smaller hotels about 15 or 20 pieces may be expected from each room, requiring a floor area in the laundry of from 5 to 8 square feet. In these small hotels

where guest work is not done, the number of pieces from each room may only be 8 or 12, and in such cases the floor area of the laundry might be reduced to from 4 to 6 square feet for each room. A good general rule for allotting space on the basis of the number of beds is 10 square feet per bed, but this should always be governed by a careful study of the conditions in each case, to see whether they warrant a reduction in the ratio of laundry space to the number of beds. If it is possible to arrange the various machines in such a way that the wash is fed from one to the other by gravity, a great saving may be effected by eliminating the space that would otherwise be devoted to the storage and movement of a large number of trucks. In a recently completed hotel of about 2300 rooms, the laundry, which is arranged to operate by gravity, has a total of 42,500 square feet of floor space distributed in this way:

Hotel work division	17,800	sq.	ft
Guests' " "	7,250	64	66
Receiving and shipping	2,600	66.	6.6
Boilers, engine, softener, tanks, etc.	5,000	66	64
Storage, employes' washrooms,			
offices, stairways, elevators, etc	9,850	66	66

It should be pointed out, however, that this laundry is in the form of a separate unit located in an outlying district where saving of space is not so vital, and that garage space and employes' restaurant are included.

Location. The attempt to make every possible square inch of hotel space available to the entertaining of guests has usually resulted in the laundries being located in the basement, which although not ideal from the point of view of the laundry itself, is bearable providing ample ventilation and artificial lighting are secured. This also



Finishing Department for Hotel Guests' Laundry



Flat Work Ironer in a Large Hotel

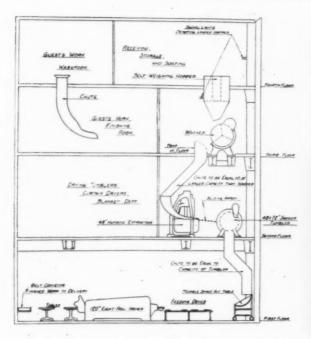
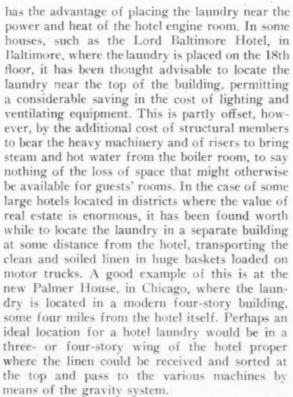


Diagram Showing Machines Arranged in Vertical Sequence



Layout. The up-to-date hotel laundry is so laid out that the soiled linen is collected from the guest rooms, sorted, washed, dried, finished and returned to the rooms with a minimum of labor, noise and confusion, the various processes taking place in direct sequence with as little crisscrossing as possible. In a hotel where the laundry is



Extractors Should Be Securely Anchored to the Floor

located on a lower floor, which is the usual arrangement, the linen is collected from the rooms in trucks and placed in laundry chutes which are usually constructed of metal, sometimes lined with glass, being perfectly smooth and having airtight doors at each floor. Being airtight, the fall of the soiled linen is air-cushioned, and it arrives at the sorting room without impact. The sorting room should be just above the washroom, if possible, and in close proximity to the laundry office where the lists are checked and charged. It is then delivered to the washroom and placed in the washers, whence it is passed to the extractors and thence to the tumblers, and finally to the various finishing departments. In the case of the flat work, such as sheets and pillow cases, they are put directly through the flat work ironers and delivered to the master linen room whence they are taken to linen closets on the various floors as needed. In some cases flat work is taken directly to the linen closets. Bath towels and curtains, after leaving the tumblers, go to special drying tumblers, and the curtains are then placed on stretcher dryers. The guests' personal work may pass through the same washers and extractors as the house work, but it is far more desirable to keep this class of work entirely separate if space and equipment permit. After leaving the extractors, this work is taken to the starch room or department where there is a large variety of starching equipment, collar equipment, shirt-finishing systems, prim presses and other finishing machines. Space must also be provided as near as possible to the guest work finishing department for sorting and packing, so that the work may be returned promptly to the rooms. By maintaining these guest work laundries, many hotels are able to collect work before 9 A.M. and return it the same day.

In addition to the office space, rest rooms and toilets for employes should be provided. These are often omitted, and the result is great inconvenience not only to the employes but to the hotel management as well. The boilers and general generators for the laundry may be separate or included in the general power unit of the hotel, and the water supply should be assured at all times. Usually it is impossible to pipe water directly from city lines, as the pressure is too low. In such cases, pumps and storage tanks should be supplied. It is the practice in modern laundries to heat water by using exhaust steam and by reclaiming heat from waste water. Equipment for all these purposes should be provided for. As already said, a considerable saving in space and labor can be made if it is possible to locate machinery in vertical sequence, so that the wash moves downward from one machine to another by force of gravity. If this is done, the soiled material is sorted into hoppers at the top and allowed to drop into the washers on the floor below. Then it drops through the floor to extractors and tumblers on the next floor, and from there drops to the shake-out tables whence it is fed through the ironers. By this method, practically all the manual labor is eliminated from the washing process. Space above the machines is utilized for storage, and a large number of push trucks, which require a considerable amount of space for storage and movement, are eliminated.

Special Features. Since absolute cleanliness is the most important factor in laundry work, the walls and floor should be smooth and easily washed with as few exposed pipes as possible. Gutters should be supplied in the wash room, and if the gravity system is to be used, proper floor openings should be provided. If natural

light is available, it should be admitted freely through an abundance of windows and skylights, if possible, as the lighting of laundries should be unusually good in order that work may be inspected and details brought out clearly. Artificial light should also be provided, and in the case of basement laundries it should be carefully planned with due attention to these requirements:

 A steady light of sufficient intensity on all working surfaces.

2. A light of comparable intensity on adjoining areas and walls.

3. Light of color and spectral character best suited to its purpose.

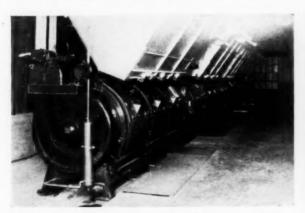
4. Freedom from glare and glaring reflections.

5. Light so directed and diffused as to prevent shadows or contrasts of intensity.

6. System to be simple and economical.

For the purpose of lighting laundries mercury vapor lights are considered by some to be even more satisfactory than sunlight, since it is easier on the eyes; does not produce a glare; and exaggerates imperfections. Another important factor in the efficient operation of a laundry is good ventilation. If the laundry is on an upper floor, this is comparatively simple. When the laundry is in the basement the equipment must be more complete. In any case, the air should be warmed to the room temperature before being admitted so as not to cause fog and condensation on the walls. In addition to the general ventilation system, hoods with exhaust fans should be provided over heated machines. Where the laundry is on a lower floor, the exhaust should not be in close proximity to the guest quarters,

Unless an architect is entirely familiar with the most up-to-date types of laundry machinery he should not attempt to write specifications for this type of equipment without calling in a laundry specialist, since this type is subject to such rapid improvement that a specification good a year or two ago may a little later be entirely out of date.



Washers with Hoppers and Trap Doors for Easy Loading and Emptying



Extractors and Washers Should Be in Close Proximity for Efficient Operation

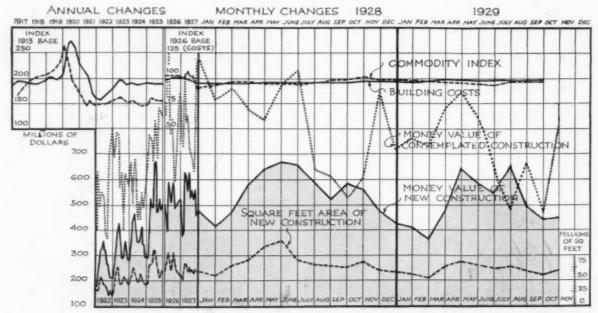
# THE BUILDING SITUATION

### A MONTHLY REVIEW OF COSTS AND CONDITIONS

UILDING construction contracts awarded Buring the month of October amounted to \$445,642,300, according to reports of the F. W. Dodge Corporation, covering the 37 states east of the Rocky Mountains. This exceeds by \$240,-000 the value of contracts awarded during the previous month, but is 25 per cent lower than the figure for October of last year. The total for the first ten months of 1929, amounting to \$5,046,909,900 shows a falling off of 12 per cent when compared with the total for the corresponding period of 1928. The district which includes New York and northern New Jersey, with contracts valued at \$101,603,100 reported during October, shows an improvement of 25 per cent when compared with September, but a great falling off, amounting to 46 per cent, when compared with October, 1928. For the first ten months of 1929 this district shows a total of \$1,-184,737,300, which is 23 per cent below that for the corresponding portion of 1928. The New England states, with an October total of \$40,-040,700 showed an improvement of 17 per cent over September, but fell off 3 per cent from October, 1928. For the first ten months of 1929, with a total of \$358,288,500, New England is 18 per

cent behind its figure for the same period of 1928.

The middle Atlantic states represent another district in which the October figures are ahead of September but below the total for the previous October. The October total of \$51,531,500 was 6 per cent ahead of September but 34 per cent below October. For the ten months to date, this district total was \$608,747,400, showing a decrease of 11 per cent when compared with the ten months of 1928. An optimistic trend seems apparent in the Pittsburgh district. The contracts awarded during the month of October amounted to \$77,619,300. The contract figures reported during October do not indicate any radical changes in the trend of construction indicated by figures of previous months of this year. It is important to note, however, that October reports of work in contemplation for future months show an increase of 73 per cent over similar reports obtained during September and of 30 per cent over contemplated work reported during October of 1928. This contemplated work may not materialize in time to swell the total for 1929, but coupled with the easier money situation, it argues well for more extensive construction activity during the early part of 1930.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) Building Costs. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) Commodity Index. Index figure determined by the United States Department of Labor. (3) Money Value of Contemplated Construction. Values of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp. and Engineering News-Record. (4) Money Value of New Construction. Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) Square Foot Area of New Construction. The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined, first by the trend of building costs, and second, by the quality of construction.

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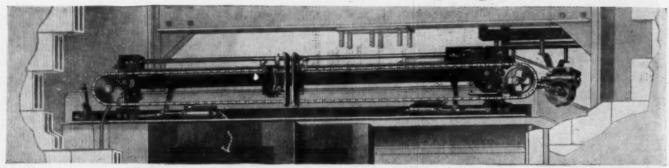
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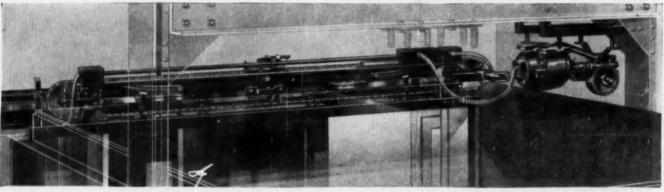
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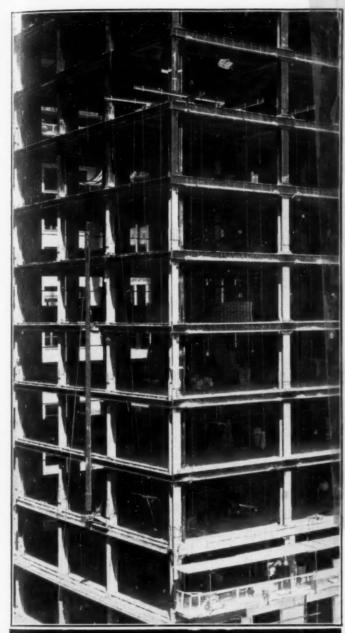
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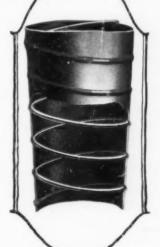
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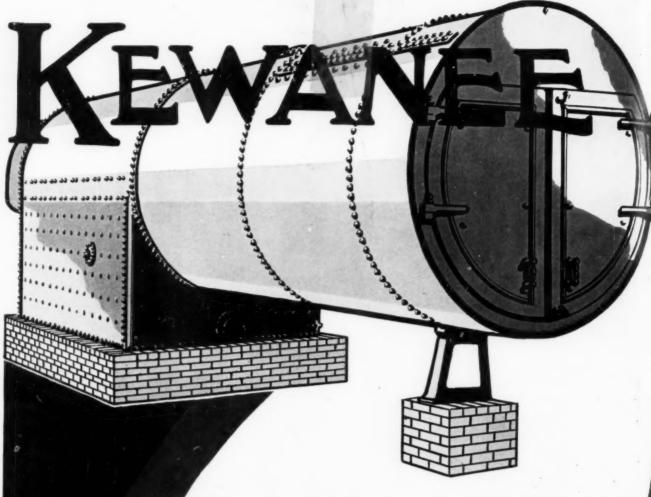
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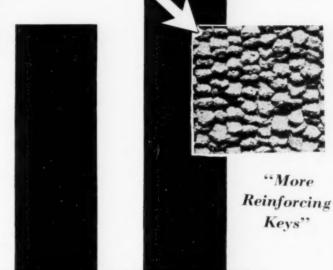
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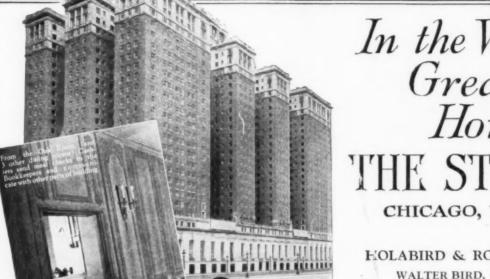
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Catalog in Sweet's Arch't. Cat., 24th Ed., pp. D5116-23 Catalog in Specification Data, 1929 Ed., pp. 228-229

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CONDENSATE to be removed from a return line vacuum heating system may vary in volume as much as 40%. Quantity of air or vapor also

fluctuates widely. For this reason, square feet of installed radiation is not the only factor to consider in choosing the correct size of pump to use. Several others must be recognized. Pressure in the system, efficiency of traps, tightness of joints, fittings and valves cannot be overlooked.

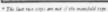
So, every Jennings Vacuum Heating Pump is rated by guaranteed air and water capacity determined by actual test. For a specified amount of radiation, a given size of Jennings Pump is recommended only if its combined air and water capacity is proved adequate to handle this radiation under all conditions. A Jennings Pump with the air and water capacities given in the table can be relied on to serve satisfactorily any reasonably well installed system for the life of the building.

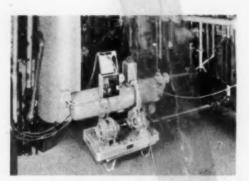
## Actual Tests Determine Jennings Pump Capacity

Air and water capacities are accurately measured. The pump is tested with its own motor and control equipment. The entire assembly is made to prove its fitness for the work which it has to perform. A certified report of the test is furnished to the purchaser.

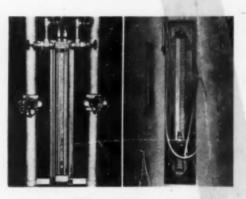
CAPACITIES OF
JENNINGS VACUUM HEATING PUMPS

Pump Size	Equivalent Direct Radiation Square Feet	Water Capacity G.P.M.	Air Capacity Cu. Ft. Per Min.	Orifice Diameter Inches	MOTOR HORSEPOWER			
					10 Lbs	20 Lbs	30 Lbs.	40 Lbs.
T	2,500	4	3	364	34	34	1	139
U	5,000	9	3	344	36	34	1	136
V	10,000	14	6	1/2	1	1	136	2
В	16,000	22	9	3/6	134	2	3	5
C	26,000	35	15	34	2	3	5	5
D	40,000	60	19	%	3	5	5	739
E	65,000	90	34	3%	5	5	739	10
F	100,000	140	50	16	734	10	15	15
*G	150,000	200	102	36 At 36	10	15	UPON REQUES	
*H	300,000	400	171	2-1681-96		UPON REQUEST		





JENNINGS VACUUM HEATING
PUMP ON TEST STAND



TYPE OF VENTURI METER AND VACUUM MANOMETER USED IN TESTING JENNINGS VACUUM HEATING PUMPS



STANDARD TEST ORIFICE



SWITCHBOARD IN NASH TEST PLANT WHICH FURNISHES ELECTRIC CURRENT OF ANY VOLTAGE, PHASE AND FREQUENCY

## Water Capacity Is Tested by Venturi Meter

Water capacity is checked by testing the volume of water in g.p.m. that the pump removes from the receiving tank under the given vacuum and delivers against the specified discharge pressure.

# Air Capacity Is Measured by Calibrated Orifice

Air capacity is found by means of a calibrated orifice of specified diameter, reamed in a brass plate one-eighth inch thick, located in the pump suction, and communicating with the receiving tank. This orifice determines the cubic feet per minute of air that the pump withdraws from the receiving tank and discharges to the atmosphere.

Air capacity is determined at the same time that the pump is delivering its rated volume of water. Water capacity is measured while the pump is handling its maximum rated quantity of air.

Only by such tested air and water capacities can good heating pump performance be assured. It pays to demand a certified factory test report, and to substantiate this wherever possible by a second test on the job.



second test on the job. CERTIFIED REPORT OF TEST

# Jennings Pumps

NASH ENGINEERING CO. SOUTH NORWALK, CONN., U. S. A.

# Modern hotels and apartments GUARD AGAINST SUDDEN DARKNESS



# Architects specify Exide Emergency Lighting Batteries as protection against current failure

MODERN apartments and hotels cannot afford sudden current failure. Tenants and guests would become dissatisfied . . . dangerous confusion might be the result. That's why architects and builders are specifying protection for important lights in hotels and apartments. And they are choosing Exide Emergency Lighting Batteries for absolutely dependable protection. Should the normal power fail, lights

are switched to an Exide . . . instantly and automatically . . . without a hand touching a switch. And the devices necessary to control and keep the battery in a charged condition are simple and automatic. No expert electrical knowledge is required . . . the usual staff can maintain the system with ease.

Exide engineers, backed by forty-one years' experience in building batteries for every purpose, have designed the Exide Emergency Lighting Battery specially to do its job, efficiently and reliably . . . and economically. Small wonder that architects all over the country are selecting Exides to safeguard banks,

hospitals, schools, theatres, stores, offices, auditoriums and any place where the public gathers.

Write today for booklet—"Emergency Lighting Batteries"—it will give you full information on specially designed Exide Batteries.



Park Lane Apartments, Hackensack, N. J., are guarded by Exide Emergency Lighting Batteries. Arthur E Dore, Hackensack, N. J., Architect.

Exide EMERGENCY LIGHTING BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

Exide Batteries of Canada, Limited, Toronto

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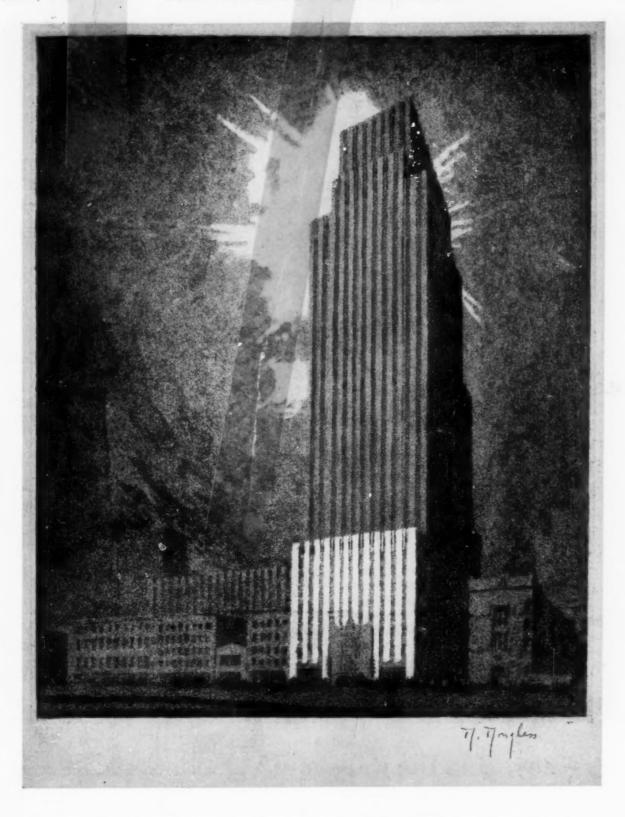
REPORT

78

NG CO.

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Aquatint study of the News Building, New York, N. Y. 

John Mead Howell and Raymond M. Hood, Architects 

Hegeman Harris Co., Inc., General Contractor 

Alvord & Swift, Heating Contractor 

John McMillan Co., Inc., Plumbing Contractor. 

Jenkins Valves are used for both the heating and plumbing of this new building. 

Jenkins Bros. 

New York 

Boston 

Philadelphia 

Chicago . . . Jenkins Bros. Ltd. 

Montreal 

London.



# A new house - a good salesman — but how about the wiring?

Thousands of prospective "new-house-buyers" have had the experience of living in houses that were inadequately wired. They are tired of having a network of lamp cord covering the walls and floor. They demand more circuits and

NON-METALLIC

more outlets in the new houses they buy.



There is no market for inadequate wiring...Non-Metallic

Sheathed Cable costs much less to install.

With it you can provide your houses with adequate wiring systems will be within your budget.

A Non-Metallic Sheathed Cable job will

A Non-Metallic Sheathed Cable job will last as long as the house.

If you're not fully acquainted with Non-Metallic Sheathed Cable ask your electrical contractor—or write to any of the Licensed Manufacturers listed below for the booklet—"Where and How to Use Non-Metallic Sheathed Cable".

American Circular Loom Company
Anaconda Wire and Cable Company
Collyer Insulated Wire Company
Eastern Tube and Tool Company
General Electric Company
National Metal Molding Division
National Electric Products Corporation
Rome Wire Company
Division of General Cable Corporation
The Wiremold Company
Triangle Conduit Company, Inc.

The above Manufacturers are Licensed under Non-metallic Sheathed Cable Patents number 1439323; 1520680; 1203788; 1673752.

SHEATHED CABLE

# Carpets Wear Longer

MANY a carpet looks old and worn when it is merely matted down with dirt and loose, broken wool fibres.

From down at the very roots of the fibres, the powerful "inrush of air" into Spencer Vacuum Cleaner tools literally lifts and pulls city soot, seashore sand, the dust of streets and the sharpest, heaviest grit.

This dirt is what literally grinds the life out of thousands of dollars worth of carpets annually. This is the material that the Spencer System removes with light, quick strokes of the proper tool, without "consuming the carpet."

This system is economical. It prolongs carpet life.

It cleans bare floors.

It reduces the cost of cleaning.

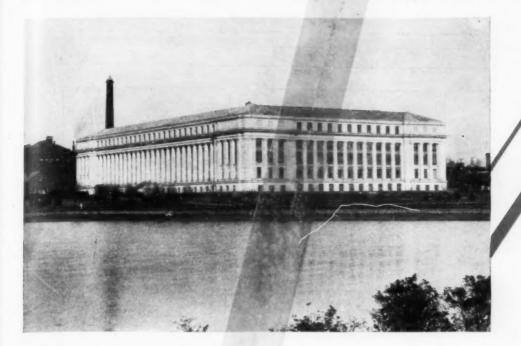
### DATA FOR ARCHITECTS

Many of America's leading hotels are Spencer Cleaned. A list of users together with special engineering data for architects will be furnished on request.

THE SPENCER TURBINE CO.

498 NEW PARK AVE., HARTFORD, CONN. CENTRAL CLEANING SYSTEMS REPRESENTATIVES IN 50 CITIES

 $T_{W0}$ 



In the Bureau of Engraving and Printing, Washington, D. C., lifetime pipe performance is assured with Youngstown pipe, while the electrical wiring is permanently protected with Youngstown Buckeye Conduit.

## You Can Be SURE With Youngstown Pipe, Conduit or Sheets

HERE is no uncertainty as to the quality of Youngstown pipe, Youngstown Buckeye Conduit or Youngstown steel sheets. When you specify Youngstown, you are specifying lifetime service backed by the performance records of thousands of installations.

And Youngstown service matches the high quality of these Youngstown products. When you are confronted with any problem involving the use of pipe, sheets or conduit, you will find the steel counsellors of The Youngstown Sheet and Tube Company glad to be of service to you. Each of the twenty district sales offices is manned by specialists in steel who will be glad to render service without the slightest obligation.

## THE YOUNGSTOWN SHEET & TUBE COMPANY

One of the oldest manufacturers of copper steel, under the well-known and established trade name "Copperoid" General Offices - YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES: D I S T R I C T
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55 New Montgomery St.
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ST. LOUIS—
Shell Bldg., 13th and Locust Sts.
YOUNGSTOWN—Stambaugh Bldg.
The Youngstown Steel Products Co. LONDON REPRESENTATIVE—The Youngstown Steel Products Co., Dashwood House, Old Broad St., London, E. C. England

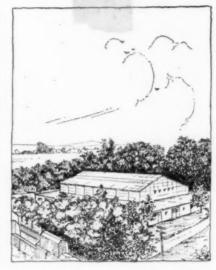
GALVANIZED SHEETS PROTECT

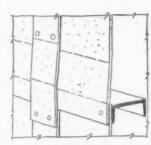
SAVE WITH STEEL



VENTILATING RIDGE

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·TYPICAL DETAIL·

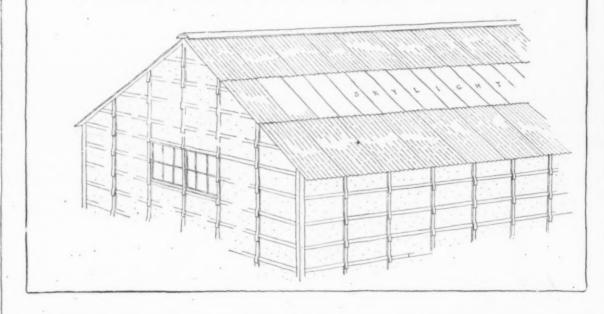




SPECIAL LIP CONSTRUCTION
WITH LIP BATTEN

·SECTION ·

\*TRANSITE CORRUGATED ASBESTOS ROOFING & SPECIAL LIP CONSTRUCTION SIDING \*



ACOUSTICAL TREATMENT RIGID ASBESTOS SHINGLES ASPHALT SHINGLES BUILT-UP&READY-TO-LAY ROOFING Johns-Manville

NEW YORK - CLEVELAND - CHICAGO - SANFRANCISCO - TORONTO

TRANSITE-FLAT&CORRUGATED
INSULATIONS AGAINST HEAT&COLD
COMPOSITION FLOORING
WATERPROOFING&DAMPPROOFING

ARCHITECTURAL SERIES PLATE Nº 6.

Since 1877

# Sovillard, REFRIGERATORS

Since 1877

Whether you need a small service refrigerator or a battery of mammoth cooling rooms, you can save yourself trouble and expense by specifying LORILLARD. Then you will know that you are getting the finest refrigerating equipment that 52 years of cumulative experience can produce. You will insure yourself of a refrigerating service made famous by four generations of LORILLARD users... a service so outstanding that it is selected for such important installations as those illustrated below.



LORILLARD Service Refrigerators at West Point Military Academy—lined throughout with Monel Metal.



Interior of LORILLARD Cooling Room at West Point. Note overhead tracks for meat hooks and the Monel Metal Jaced Door.



Entrances to LORILLARD Cooling Rooms at West Point. Doors are faced with Monel Metal inside and outside, with Monel Metal jambs.



LORILLARD Refrigerators and Refrigerated Counter with Monel Metal Top in the kitchen of the New York Athletic Club.



LORILLARD Refrigerator in the D. L. & W. R. R. Station Restaurant, Hoboken, N. J. Faced entirely with Monel Metal.



Monel Metal lined LORILLARD Refrigerator in the Savarin Restaurant in the New York Life Bldg., New York City.

To maintain the high standards of materials and craftsmanship established in 1877, LOR-ILLARD Refrigerators are built with a painstaking care almost unknown to this modern age. Doors are fitted by hand. Hardware is at least 50% heavier than that ordinarily used. The cork board insulation will stand immersion in boiling water without disintegrating or an expansion of more than 2% of its dimensions.

All LORILLARD Refrigerators are built in our own factory at Kingston, N. Y., of selected lumber that has been properly seasoned in our own kilns. The interiors are lined with heavy galvanized iron, porcelain enameled iron, tile or glass. Some of the finer models are lined with Monel Metal throughout. Every detail of material, design and construction is planned to increase the satisfaction of LORILLARD users.

BOSTON
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WASHINGTON NEW ORLEANS

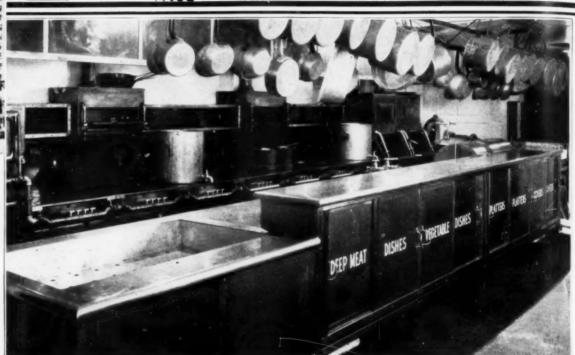
DIVISION OF ALBERT PICK-BARTH COMPANY, INC.

General Offices: Oakley, Cincinnati, Ohio

Chicago Sales Office 1200 West 35th Street Detroit Sales Office 170 East Larned Street New York Sales Office

The Hotel Governor Clinton, New York Latest addition to Van's roster of noted hotels.





MURGATROYD AND OGDEN
Architects



The salad pantry is provided with capacious storage and counter space.
The refrigerators are Lorillard.

The heart of the kitchen is the range and broiler section. Here is shown this division of the Hotel Governor Clinton Kitchen. The cooks' tables have Monel Metal tops.



A general view of the main kitchen of the Hotel Governor Clinton, New York, created and installed in its entirety by the John Van Range Company.

I'wo

# CLINTON VAN EQUIPMENT

This great new hotel wanted kitchen equipment that would STAY new

Equipment that has something more than surface polish. Equipment that will stand up under years of heavy duty. Equipment that will give uninterrupted service without costly breakdowns or replacements! These were the specifications of the Hotel Governor Clinton.

The hotel management compared brands, claims, prices and previous records. They examined other kitchens. Their final choice . . . the choice of thousands of hotel men during the past 75 years . . . was Van Equipment. No doubt you already know why. Perhaps Van has always been your choice, too. If not, we'll gladly send details.

# The John Van Range &

DIVISION OF ALBERT PICK-BARTH COMPANY, INC.

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The compact kitchens for the Governor Clinton Grill and Coffee Shop. The dishwashing section is at the left; in the background is the range and broiler division.





The room service pantry is equipped for prompt service of hot food. The large Lorillard Refrigerator is one of many recent installations.

## These New Books Free

Planning Restaurants That Make Money. An 80-page booklet on the architectural and business problems to be considered in planning all types of commercial restaurants.

Practical Planning of School Food Service. A comprehensive treatise on all phases of school cafeterias and kitchens. Not a catalog. Contains many plates, floor plans and much valuable data.

Practical Planning for Church Food Service. Help on a difficult problem! Here printed for the first time are facts about church kitchens and serving rooms, illustrated by many examples, with floor plans and photographs.

Practical Planning for Club Food Service. Unusually complete and authoritative data, with floor plans, etc., are included in this book. An important addition to any architectural library.

A request on your letterhead will bring any of these volumes.



MODERN theatre builders realize that good, dependable ventilation means continued patronage.

The new Fox Theatre in San Francisco radiates comfort, charm and relaxation from the moment one steps within the door. It's perfect ventilation system contributes much to this pleasing atmosphere.

Powerful Westinghouse motors drive ventilating fans and blowers which circulate the air at the rate of 140,000 cubic feet per minute. Every breath of air in the theatre is changed every five minutes, so that regardless of weather conditions, patrons are constantly assured of the comfort of being surrounded by fresh, clean air.

In the engaging atmosphere of this theatre, Westinghouse equipment plays a conspicuous role—a part that offers a striking example of cooperative effort and unified responsibility.

WESTINGHOUSE ELECTRIC & MFG. COMPANY PENNSYLVANIA

SALES OFFICES AND SERVICE SHOPS IN ALL PRINCIPAL CITIES OF THE UNITED STATES



Westinghouse

 $T_{W0}$ 



# TIME

... if it breaks down the

mortar joint it will break

down the wall

ON the most durable building construction the marks of Time's destructive scythe will slowly but inevitably become apparent.

The best protection against the effects of time on masonry is a mortar bond that will endure the disintegrating attacks of passing years as sturdily as the brick or stone it bonds together. Such a lasting bond is produced with Kosmortar. Its strength and endurance result in a mortar bond that will remain, without the need of patching or repairing, an integral part of the masonry. Merely the

mixture of sand andwater with Kosmortar produces this strong, hard mortar, consistently as strong as 50-50 cement and lime mortar. Be-

cause of its skilful chemical composition and laboratory-controlled manufacture, Kosmortar eliminates hit-or-miss methods of mixing boxes.

Kosmortar is exceedingly plastic; non-staining, and water-resistant. Write for complete information. The Ideal Cement for Masonry. KOSMOS PORTLAND CEMENT CO., Incorporated, Mill, Kosmosdale, Kentucky; Sales Offices, Louisville, Kentucky.

Made in the same mills as Kosmos Portland Cement, a brand that has been distinguished for high-test, uniform and reliable quality for over twenty years.



# Atlantic City's

THE Hotel Claridge, now under construction, is Atlantic City's latest skyscraper,

Strategically located at Brighton Place Indiana Avenue, and Park Place; fronted by superbly landscaped city park; overlooking a night the ever-changing hues and shapes of the municipal G-E Novalux electric fountain; an with a broad, unobstructed view of the ocea—no wonder that McIlvain and Roberts of Philadelphia, the architects, take justifiab pride in this project.

In planning, no detail of construction was spared to make each of the twenty-four storic accessible, convenient, and modern. Hence General Electric elevator control has been selected to supply swift and dependable vertical transportation in the beautiful net Claridge.



Model of the new Hotel Claridge—Architects: McIlvain and Roberts, Philadelphia, showing park and G-E Novalux electric fountain in the foreground.

See this model at the General Electric Company's National Exhibit at Central Pier, 1400 Boardwalk, Atlantic City

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

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# New Skyscraper

FIVE Gurney elevators, rated 2500 lb. at 700 ft. per minute, driven by General Electric elevator equipment of the gearless traction type having variable-voltage control and automatic leveling, will be used in the Claridge.

In their choice of elevator equipment, Messrs. McIlvain and Roberts were governed by the following factors:

The safety of passengers
The comfort of passengers
The prevention of shutdowns
The minimizing of running time

These important advantages are obtained in G-E elevator equipment by the careful interdesign of the component parts, which results in a smoothness of operation almost unbelievable, yet rapid, accurate, simple, and dependable.

The Hotel Claridge will benefit by four outstanding General Electric contributions to the art of elevator control.

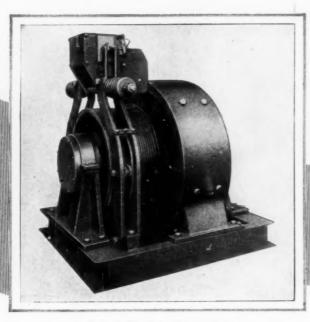
Automatic control of elevator-speed regulation, both at running speeds and at approaching and landing speeds.

Automatic control of acceleration and retardation, resulting in the greatest comfort and the shortest time of operation.

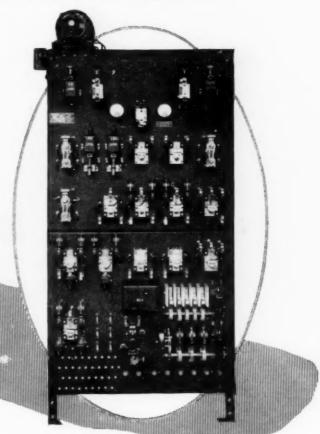
Improved design of elevator equipment, rendering operation more effective and reducing maintenance cost.

Automatic leveling control of the simplest, most accurate, and reliable type, effected through the main elevator motor.

Whenever there exists a problem in vertical transportation in any building, old or new, General Electric stands ready to provide suitable electric elevator equipment.



General Electric gearless traction elevator motor



General Electric control panel for automatic leveling

ELLES CTRICES IN PRINCIPAL CITTES

# The Invisible Superintendent at the Mortar Box makes a mortar

ONE PART BRIXMENT, three parts sand (no lime, no portland) makes a mortar that has the necessary strength and plasticity and many other advantages as well:

So hard that a nail cannot be driven into the joint... Sets up even under water... Repels moisture... Does not cause efflorescence or fade colors... Uniform in strength and color... Makes neater brickwork due to convenient setting time and smooth-working qualities... Reduces cost of materials... Less labor in mixing (no soaking or slaking)... Saves bricklayer's time because of unusual plasticity... Especially good for winter work.

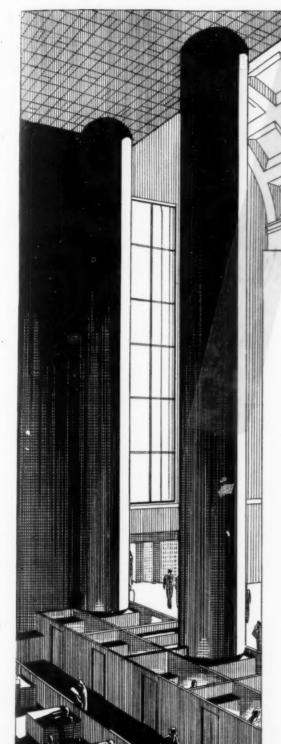
Architect's handbook on request. Louisville Cement Company, Incorporated, Louisville, Ky.

that meets
ALL
requirements

District Sales Offices: 1610 Builders Bldg., Chicago; 301 Rose Bldg., Cleveland; 602 Murphy Bldg., Detroit; 101 Park Ave., New York

BRIXMENT
for Mortar and Stucco





# Combining beauty with quiet

This new acoustical product pleases both eye and ear

USG Acoustical Tile is a highly efficient sound absorbent. Its antique marble finish adds a note of elegance and dignity to interiors.

It provides acoustical correction in auditoria and absorbs from 60 to 90 per cent of noise wherever used. It is quickly applied over wall and ceiling surfaces in old or new buildings.

USG Acoustical Tile is available in several shades and sizes to harmonize with any architectural period. Redecoration is not required. The original appearance is easily restored by vacuum cleaning at a fraction of the usual cost of redecoration.

Maximum noise absorption is assured. The United States Gypsum Company will contract for the installation of USG Acoustical Tile only where the desired results can be secured.

Complete information for your files on this effective way to control acoustics will be sent on request. Phone your local sales office or write United States Gypsum Company, Dept. 27N, 300 West Adams Street, Chicago, Illinois.

USG ACOUSTICAL TILE
A product of UNITED STATES GYPSUM COMPANY USS

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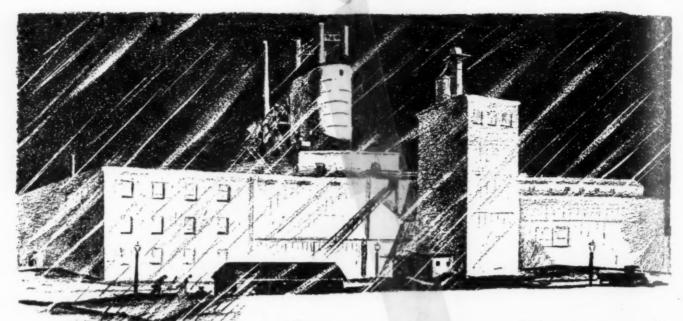
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# Water Repellency

The sleet and snow of winter, and the severest storms of summer are repelled alike by these dependable protective paints.

Dixon's Industrial Paints, known for more than 65 years as Dixon's Silica-Graphite Paints, are composed (except Bright Aluminum and Standard Oxide Red) of pure boiled linseed oil combined with the highest grade of flake silica-graphite.

And flake silica-graphite has proved, over the years, to be an unusually effective pigment for metal protective paints. It has a peculiar quality of "Water Repellency"; and as corrosion does not occur except in the presence of moisture, much longer protection is assured.

It is also absolutely inert, chemically speaking, hence not affected by the action of gases, acids, alkalis, and other destructive agents.

A complete line of Dixon's Industrial Paints in 14 colors, including Bright Aluminum and Standard Red Oxide is now available. Write for color card No. 227 BL

Paint Sales Division

Joseph Dixon Crucible Company Jersey City, N. J.

Established 1827

## **DIXON'S** MAINTENANCE FLOOR PAINTS

give maximum protection to wood, composition, concrete and cement floors. Suitable for use indoors or outside. Write for color card No. 227 BF.





# Tasting doesn't

tell

WATERS may taste and look alike but, at the same time, depending upon their sources and treatment, may vary greatly in their effects on plumbing pipe. Purity, from a health standpoint, has no relation to corrosiveness.

In writing plumbing pipe specifications, therefore, the character of the local water supply should be carefully considered. Brass Pipe will outlast rustable pipe under all conditions, but not all alloys of brass will give the same satisfactory service everywhere.

To meet different water conditions, The American Brass Company has developed two alloys of Anaconda Brass Pipe, Anaconda 85 and Anaconda 67.

Anaconda 67 Brass Pipe—Where normal water conditions prevail; that is when waters are not drawn from peaty sources, shallow wells, tubular wells or filter galleries in lowlands along river beds and where filtered waters are not of high permanent hardness, Anaconda 67 Brass Pipe is recommended. This pipe contains not less than 67% copper; is seamless, semi-annealed and guaranteed.

Anaconda 85 Red-Brass Pipe—For distribution lines carrying ground waters and colored surface waters, particularly when drawn from peaty sources and filtered waters which may be high in carbonic acid content and low in alkalinity, Anaconda 85 Red-Brass Pipe is offered as the best corrosion-resisting pipe commercially obtainable. This pipe, containing a minimum of 85% copper, is seamless, semi-annealed and guaranteed.



Tasting the water doesn't tell anything about its corrosiveness... Waters that are purest and most healthful may be highly corrosive.

## Proved by 16 years of testing

The durability of these two kinds of pipe has been proven by 16 years of exhaustive research during which many copper-zinc pipe alloys were subjected to the action of unusually corrosive water for a period of ten years. Six years' field investigation of actual installations substantiated the laboratory tests and resulted in the adoption of the alloys now known as Anaconda 67 and Anaconda 85.

## Service to Architects

The Technical Department of The American Brass Company is prepared to help determine the character of local water supplies. Architects are invited to make use of this service. The American Brass Company; General Offices: Waterbury, Connecticut.

# ANACONDA BRASS PIPE

FOR HOT AND COLD WATER LINES



HERE is the latest addition to the Kohler line. A very important addition—"K of K Hygienic" closet seats. A complete line—all models—open and closed front, with and without covers, in Sea Pearl finish or plain, harmonizing with all Kohler colors, also in white, black, mahogany, and golden oak.

With many new features to recommend it, perhaps the outstanding feature of this new line is Kohler Quality. "K of K Hygienic" seats are made by Kohler at Kohler, insuring the same quality standard, centralized control, fine workmanship, and rigid inspection that have built the reputation of Kohler Enameled Iron fixtures, Vitreous China, and Brass.

You may now specify Kohler closets complete with Kohler seats, crated together—thus centralizing responsibility for quality and delivery, while simplifying specification-writing, ordering, and handling "on the job."

## Improved Design—New Features Kohler Quality

- 1. Cover and seat swing from one concealed bar hinge.
- 2. Flange on hinge checks seat and cover in upright position.
- 3. Two metal bars keep cover securely in place.
- 1. Solid hardwood core, reinforced with cross-grain dowels.
- 5. Durable, sanitary sheet covering.

Kohler Co., Founded 1873, Kohler, Wis. · Shipping Point, Sheboygan, Wis. · Branches in Principal Cities

# KOHLER OF KOHLER

PLUMBING FIXTURES

LOOK FOR THE KOHLER TRADE MARK ON EACH FIXTURE

rely in

URE

# Strengthen the "vital spots"!

## Specify Mueller faucets and fittings

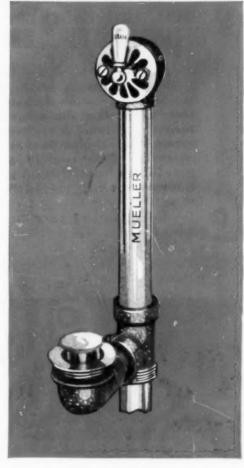
MODERN architects know that dependable water service is imperative in every building that they design. Thousands of these men have learned that the "vital spots" of a water system-faucets and fittings-can be relied upon to give year-afteryear service if "MUELLER" is written into the specifications.

Mueller Faucets and Fittings are built of the finest obtainable materials by an organization which for 72 years has manufactured these products to the highest standards of quality. Rigid laboratory control and the skilled workmanship of master craftsmen are not regarded as a sufficient guaranty of Mueller Quality. As an added precaution, Mueller products are tested under conditions which are many times more severe than those encountered in

Mueller dependability may be enjoyed without sacrifice of appearance, for selections can be made from a wide variety of beautiful and richly finished Mueller designs. Ask your master plumber about Mueller Faucets and Fittings or write to us for interesting information.

MUELLER CO. (Established 1857), Decatur, Illinois. Branches: New York, 135th St. and Walnut Ave., Bronx; Dallas, San Francisco, Los Angeles. Canadian Factory: MUELLER, Limited, Sarnia.





Mueller Built-In Equipment

offers important advantages in simplicity of design and easy accessibility.

## Mueller G-4050

Over-Rim Tub Filler. Overhead shower may be connected.

### Mueller G-5865

Pop-Up Drain. No panel necessary behind tub. All parts removable from inside of tub.

MUELLE

PLUMBING BRONZE AND VITREOUS WARE

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An extensive, hidden maze of Republic Pipe, a tubular structure in itself-carries the heat to every corner of this monumental building. A built-in system of steel pipes that are essential to the comfort of practically a small town of humans who daily people the structure.

Dependability and durability were the pipe demands-Republic was used.

Heating Contractors—Raisler Heating Co., N. Y. C.

> International Telephone Building New York City BUCHMAN & KAHN . Architects



## PRODUCTS

PRODUCTS

Pig Iron
Semi-finished Steel
Bars and Shapes
Hot and Cold Rolled Strip
Skelp
Black, Blue, Annealed,
Galvanized and Long
Terne Sheets
Coke Tin Plate—Tin Mill
Black Plate
Black and Galvanized
Standard Pipe
Oil Country Tubular
Goods
Bolts, Nuts, Spikes, etc.

## **Branch Offices**

Birmingham Detroit Boston Buffalo Chicago Cincinnati Cleveland Dallas Denver

El Paso Los Angeles Philadelphia Pittsburgh San Francisco Seattle St. Louis

REPUBLIC IRON & STEEL CO. YOUNGSTOWN O. STEEL PIPE



WITHIN the last few years false modesty has given way to a new frankness regarding women's hygienic problems.

The need of the modern fastidious woman for adequate sanitation in her home or office is one which demands the serious consideration of every practicing architect.

The trapway of the average toilet is so small as to scarcely permit the passage of a golf ball. Such a toilet,

when used for the disposal of sanitary pads, eventually clogs, stops up and causes repeated annoyance and embarrassment.

But there is one fine modern toilet particularly designed to meet this difficult problem. It is The Improved Madera, with large oversize trapway and powerful, yet silent, twin-jet siphonic flushing. The Madera passes sanitary pads easily and safely.

In addition to this thoroughly important feature, the Madera has a generous elongated bowl of glass-hard Durock, long and soil-proof seat with large opening, with all surfaces below the seat opening completely covered with water. Include it in your next specifications.

Thomas Maddock's Sons Pottery, Division of Standard Sanitary Manufacturing Company, Trenton, N. J.

# AKI INGOTIRON



ventilating ducts in new Koppers Building

> THE majestic new Koppers building, in Pitts-L burgh, was built to endure. So it was but fitting that rust-resisting ARMCO Ingot Iron be chosen for the ventilating ducts.

By the use of this pure iron, the expense and annoyance of frequent repairs and replacements will be avoided.

ARMCO Ingot Iron was selected because of its proved durability-the longest record of actual. service of any low-cost, rust-resisting sheet metal.

Perhaps out of our wide experience we can help you with some sheet metal problem that's confronting you now. The office nearest you will be glad to assist. Write or telephone.

Back of this familiar symbol is nearly thirty years' experience in the manufacture of special analysis iron and steel sheets and plates. When you want a rust-resisting, low-cost metal be sure to see this triangle and the words "ARMCO Ingot Iron." It is assurance of dependable, economical service.

THE AMERICAN ROLLING MILL COMPANY

Executive Offices, Middletown, Ohio Export: The ARMCO International Corporation

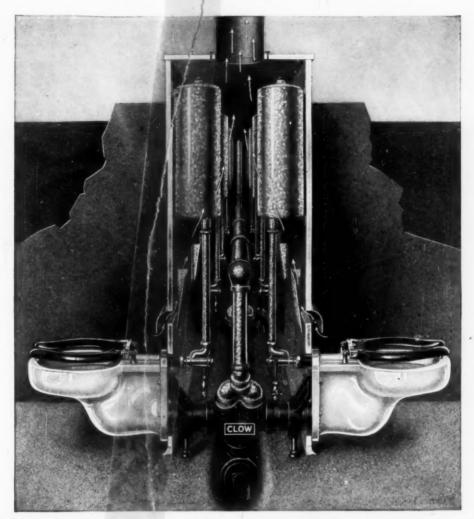
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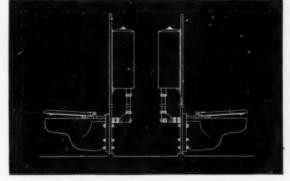
#### **AUTOMATICALLY FRESH AND CLEAN**

with Clow Madden Wallomatics ... and Clow Patented Ventilators

Above is shown the application of the Clow Patented Closet Stall Ventilator. Through it, odors are drawn from the toilet room into the utility corridor—and carried off, at the outlet. It is so constructed that paper cannot be stuffed in to stop its action.

Automatically, close trooms are fresh and clean.

And, independently of forgetful minds—Clow Madden Wallomatics send a powerful stream of water, cleansing the entire bowl after every use. There's nothing to touch. Nothing to remember. It's automatic.



RECORD NO. 107

26 years ago, 15 Clow Madden Automatics were installed at the May Street School, Benton Harbor, Michigan. In the past 6 years not one cent has been spent for repairs. No record was kept for previous years.

With Clow Madden Automatics, sanitation is assured for a quarter century and more—as installation records show.

For the Clow Madden Valve has only two moving parts—has no minute by-passes to cause trouble. Tests prove it uses less than half the usual amount of water, for a surer flush.

With Clow Patented Ventilators and Clow Madden Wallomatics, odor-free air and taint-free closets are automatically assured for the life of the building.

(Center Illustration)
Showing how closed top tanks are concealed in utility corridor behind back wall. Clow Wallomatics are built free of the floor for cleaner toilet rooms.

JAMES B. CLOW & SONS, 201-299 NORTH TALMAN AVE., CHICAGO

### CLOW MADDEN AUTOMATIC

Forty-Eight Styles, Heights and Types to Meet Your Requirements

Decer

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MATIONA)

NATIONAL TUBE COMPANY, PITTSBURGH, PA. Subsidiary of United States Steel Corporation

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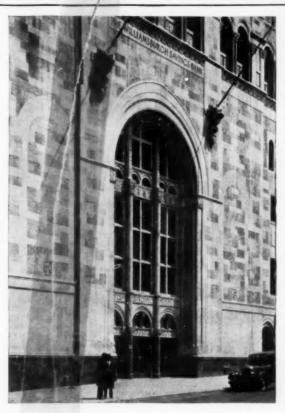
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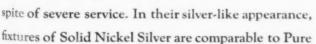
#### MEETING ARCHITECTURAL STANDARDS OF QUALITY



Entrance to Williamsburgh Savings
Bank Bldg., Ashland and Hanson
Places, Brooklyn, New York,
HALSEY, McCORMICK & HELMER, INC., architects; ALEXANDER BRYANT CO., plumbing
contractors; Solid Nickel Silver\*
plumbing fixtures in Bank offices by
MEYER-SNIFFEN CO., New York.

#### WILLIAMSBURGH SAVINGS BANK SOLID NICKEL SILVER\* PLUMBING FIXTURES BY MEYER-SNIFFEN

THE Williamsburgh Savings Bank is another leading financial institution that insures the beauty and permanence of plumbing fixtures by using Solid Nickel Silver. Plumbing fixtures of Solid Nickel Silverwere specified for these beautiful bank offices because this type of sanitary equipment retains its lustrous, clean-looking appearance in





18/22 NICKE

Nickel and to alloys of high Nickel content. They are corrosion-resisting and easy to keep bright...not easily marred or broken during installation or use. In hardness, toughness and strength they are similar to tough bronze and provide unusual wear-resistance, particularly at the valve seats. For quality plumbing installations, both large

and small, the highest architectural opinion agrees that there is no substitute for Solid Nickel Silver.

\*Diamond Metal is the name used by the MEYER-SNIFFEN CO. to identify its Nickel alloy used in manufacturing Nickel Silver plumbing fixtures. This is a solid white metal and contains a high percentage of Nickel.

## "Flush-Kleen"

SEWAGE EJECTORS

### In The HOTEL



Schroeder Hotel.—Milwaukee
...uses Dupler "Flush-Kleen" Sewage Ejectors
Architect—Holabird & Root, Chicago
Plumbing Contractor—Wenzel &
Henoch, Milwaukee

HOTELS—such as the Schroeder, in Milwaukee—are using the "Flush-Kleen" Sewage Ejector to good advantage.

Public facilities receiving most use, and abuse, must be capable and sturdy.

"Flush-Kleen" will handle anything that can pass through sanitary return lines.

No strainer baskets to be cleaned—an obnoxious job often disregarded and which indirectly is the cause of much trouble in the basket type installation.

# "Flush-Kleen"

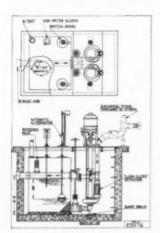


Fig. 2057—Diagram of Duplex Dry Basin Flush-Kleen Sewage Ejectors.

has been developed by "Chicago Pump" engineers who have had over 20 years' experience in pump design, and is recommended and guaranteed for hotel use.

Without the slightest hesitancy, engineers who have had "Flush-Kleen" experience, run most any kind of waste into their ejector pits.

"Flush-Kleen" employs the flow reversal principle—just like backwashing a filter.

Layouts, engineering data, specifications on several types of "Flush-Kleen" Ejectors to meet various conditions are available to you in Bulletin No. 125.

#### ... will handle

- 1-Returns from basement toilets.
- 2-Refuse from kitchens.
- 3—Drainage from laundries, barber shops, etc.
- 4-Seepage and sub-drainage.
- 5—Anything that enters the basin . . . you cannot clog a "Flush-Kleen."

#### . features

- a-No strainer baskets to be
- b-No sewage touches the impellers—they cannot bind or clog.
- c—Basins do not become foul and unsanitary.
- d—Operation of pumps alternated by the "Automatic Alternator."

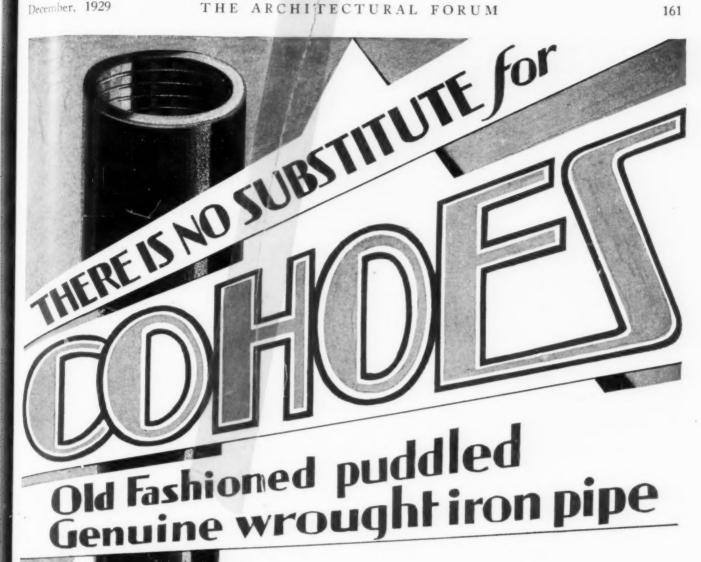
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New York Office—79 Madison Ave.

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Two





Facts are based upon experience—upon what has been done. Cohoes Pipe has demonstrated in 75 years of every conceivable use that it resists corrosion and rust and is leak-proof. The Cohoes old fashioned puddling mills turn out a quality of Genuine Wrought Iron that is impervious to time and the elements.

Our hand book of "Pipe Facts" contains authoritative information of sizes, weights and uses.

Send for it.

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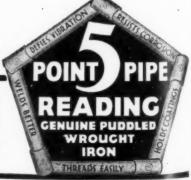
UT Reading Genuine Puddled Wrought Iron Pipe into your buildings. As far as you are concerned, the wrench that tightens the joints is the last wrench they need ever know. For far beyond the span of human life, these sturdy pipes will resist corrosion, strain, and vibration. But if the building be torn down, other wrenches may take these pipes apart only to reinstall them elsewhere!

Be sure you get pipe with the Reading name, date of manufacture, and cut-in spiral knurl mark on it.

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Atlanta Baltimore Cleveland New York Philadelphia
Boston Cincinnati St. Louis Chicago New Orleans
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Detroit Pittsburgh Ft. Worth Los Angeles Kansas City

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MUNICIPAL AUDITORIUM, NEW ORLEANS, LA.

Favrot & Livaudais, New Orleans, Architects. Equipped with DOUGLAS Plumbing Fixtures trimmed with Solid Nickel Silver.
A. G. Rose, Inc., New Orleans, Plumbers.

# The Architect's Choice | DOUGLAS | Solid | Nickel | | Silver | self-closing | faucet | | with drop ear indexed | han-

#### PLUMBING FIXTURES trimmed with Solid Nickel Silver

Consistent with their well-established policy of carefully selecting materials and workmanship, Favrot & Livaudais, Architects, of New Orleans, specified DOUGLAS Plumbing Fixtures equipped with Solid Nickel Silver Fittings for the handsome new Municipal Auditorium at New Orleans.

Fittings of this type are recognized to meet the highest architectural standards of quality. Long usage has proven their ability to remain everlastingly beautiful.

In comparing Solid Nickel Silver with plated fittings, they should be considered in the same light as when comparing any other solid metal with plated ware.

#### SOLID ICKE SILVER

Solid Nickel Silver is nickel color through and through. It's rich lustre is equalled only by the mellow beauty of fine old silver. There is no plating to wear off or chip—it never rusts—resists corrosion—easily cleaned—as hard as bronze. Due to its toughness, valve seats are highly wear resistant.



DOUGLAS "Seneca" vitreous china drinking fountain with side stream—one of the many DOUGLAS super-sanitary plumbing fixtures.

The JOHN DOUGLAS COMPANY, Cincinnati, Ohio

Manufacturers of High-grade Plumbing Fixtures Since 1887

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as

Greatgrandfather

# Paul Revere

### founded this business

### THE PIONEER OF THE COPPER INDUSTRY

History dramatizes Paul Revere as a daring, horseback patriot, who in spare time wrought exquisite silver bowls. In Canton, Mass., are relics of a lesser known Paul Revere, pioneer in copper rolling, founder of a great American industry.

Here in 1801, Paul Revere built America's first copper-rolling mill and rolled America's first copper sheet. His original Revere & Son (later Revere Copper Co.) was handed down to son, grandson, great-grandson.



Last year came an important consolidation in American industry. Six successful companies joined as one . . .



Baltimore Copper Mills, Dallas Brass & Copper Co., Higgins Brass & Manufacturing Co., Michigan Copper & Brass Co., Rome Brass & Copper Co., Taunton-New Bedford Copper Co. Their six plants high-spot the entire industrial area from Boston to Baltimore to Chicago. Their six units, with their specialties, combine to make a

complete service in copper, brass and bronze. A natural consolidation!

In the Taunton-New Bedford unit, of which Edward H. R. Revere is Chairman, was the original Revere Copper Company founded in 1801.

So to perpetuate the name Revere in the industry and in the very business which Paul Revere founded, the name of this consolidated group now becomes:

REVERE COPPER AND BRASS INCORPORATED.

# Revere Copper and Brass



Divisions: Baltimore Copper Mills, Baltimore, Md. . . Dallas Brass & Copper Co., Chicago, Ill. . Higgins Brass & Manufacturing Co., Detroit, Mich. . . Michigan Copper and Brass Co., Detroit, Mich. . Rome Brass & Copper Co., Rome, N. Y. . . Taunton-New Bedford Copper Co., Taunton, Mass General Offices: ROME, N. Y.

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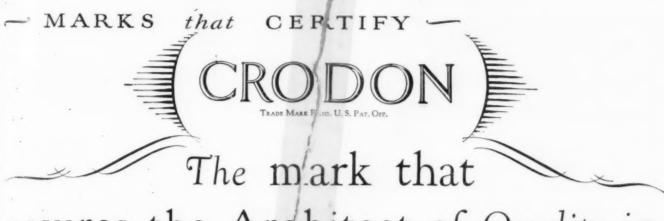
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# assures the Architect of Quality in CHROMIUM PLATE!

An open letter... short and to the point!

#### Gentlemen:

Chromium Plating has progressed since its youth. The science—and Chromium Plating is a science—now reaches its highest perfection in CRODON. This word identifies Chromium Plate with which is associated neither "ifs" nor "buts". CRODON is simply a mark that assures Architects of quality in Chromium Plate... and to specify CRODON is simply to specify the products of the most noteworthy manufacturers.

May we send you a complete list of CRODON licensees?

Earnestly yours, United Chromium, Inc.

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CHROMIUM CORPORATION OF AMERICA

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#### UNITED CHROMIUM

INCORPORATED

Executive Offices: 51 East 42nd Street, New York City

the acid waste pipe that is no more attacked by acids and alkalis than by pure water.

the pipe that passes all plumbing codes, and outlasts the building.

The only drain pipe that meets these rigid specifications is acid-proof Durironthe choice of more than 1100 architects and engineers.

Full data in "Sweet's" or write for preprint.

The Duriron Company, Dayton, Ohio

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#### MIR. CORNELIUS CRANE

WATER requirements of guests and crew of a yacht undertaking a world cruise must be dependable. On the Illyria, private yacht of Mr. Cornelius Crane of the R. T. Crane Co., Chicago, two Kewanee water supply systems furnish an abundance of water always under strong pressure.

The Kewanee line of over 200 DIFFERENT MOD-ELLS of private systems for HIGH PRESSURE water supply, electric light and sewage disposal give a wide range of selection that meets the requiren ints of every user from the most modest bungalo " to the largest estate. Also a full line of Centrifug al Pumps and Deep Well Turbines from the small \$69.50 outfit to those which fit wells from 12" to 36" in diameter.

Ke wanee will show you how to save dollars and trouble. Write for data.

#### KEW ANEE PRIVATE UTILITIES COMPANY 442 S. Franklin Street, Kewanee, Illinois

Dealer Correspondence Invited

#### Positive Rapid Circulation on ALL Hot Water Systems

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#### HYDROLATOR

You can assure highest efficiency on every hot water system you plan by specifying a HYDROLATOR. Forces rapid circulation. Positive in action. Overcomes traps and restrictions.

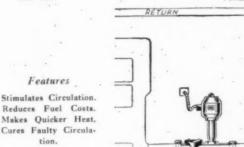
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#### Janette Mfg. Co., Dept. A

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# HOTELS STATLER NIEDECKEN



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First Installations, Cleveland, 700 Showers in 1912. Latest Installations, Hotel Pennsylvania, 1,500 showers—Now Being Completed.

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STATLER

#### SEND FOR BLUE PRINT PLANS

Interesting lay-outs of how to utilize present space to install showers in hotel rooms without taking away room space. For hotel remodeling, and the more modern shower bath equipment for hotels, so much desired now. Write for these blue print suggestions now.

# THE LARGEST HOTEL INSTALLATION IN THE WORLD

The many patented advantages in Niedecken Showers — practical, easy-clean, removable shower head; water economy spray; water saving temperature control mixer; positive leak-proof shower stall—and other advantages will convince you that NIEDECKEN Showers are superior to all others, as they convinced Mr. Statler. Write for details now.

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#### DESCRIPTIVE LITERATURE ON REQUEST

Write now for detail descriptive, illustrated literature about Niedecken Showers; Shower Head construction and easy-clean method; Mixer and Water Control details; Shower Stall leak proof designs, etc. Sent in full, gladly upon request.



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World's Tallest Garage Selects

### Traps

This 24-story garage has a capacity for 1,000 automobiles. Cars are taken on the elevators automatically at the street level and automatically removed by an electric parker. All parking is done by electricity-no human hand touches the

There are 234 Sarco Radiator Traps in the heating system of this gigantic garage, while Sarco combination float and thermostatic Steam Traps were installed on all unit heaters

The larger and more important the building is, the greater is the responsibility of selecting its equipment. It is in buildings of this type that you will usually find Sarco Traps. For architects, engineers and contractors know that Sarco Traps have given dependable service for years and years and that they are backed by an old, responsible concern who "makes good" promptly, without question or quibble, if ever needed.

Write for Catalog AK-75, or mail the coupon

#### Sarco Co., Inc.

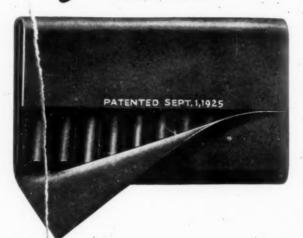
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IN stone, terra cotta or marble buildings, regardless of the rigidity of the structural steel or reinforced concrete frame, there are movements which occur that will create an overstressing of the facing material at various points. These movements may be caused by compression of the steel, vibration, wind action or unequalized expansion or contraction between the frame and the facing material due to temperature changes.

Wherethese movements occur—if there is not some elasticity in the face of the building-there will be some cracked facing blocks due to overstress.

The Cowing Joint, installed in place of one mortar joint at each story height, provides the needed elasticity. It gives exact and automatic compensation for all destructive stresses thrown on the facing material.

It is neat . . . will not squeeze out . . . eliminates frequent tuck-pointing . . . it is everlasting.

Include Cowing Joint in the specifications.

Estimates will be furnished promptly.

Cowing Pressure Relieving Joint Co.

160 N. Wells St. · Chicago, Ill.

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Imagine concrete highways laid without provision for expansion. What a "roller coaster" ride they would give autoists: The same problem must be met in the soil, waste and vent lines of buildings or buckling and leaky joints are bound to occur.

A specially designed gasket in the hub of each length of EXPAN-HUB SOIL PIPE takes care of expansion and settlement-pre-BAND joints gas-tight, permanently.

EXPAN-HUB venting buckling of the stack and keeping

Contractors, Engineers and Architects say this one feature is the greatest advance in soil pipe in 50 years.

On top of that the design of EXPAN-HUB is a distinct improvement. For the extra thickness at the hub, which tapers off into the pipe, allows caulking joints without fear of splitting hubs.

Here, at last, is a soil pipe that's different. A pipe that every owner will immediately recognize as a distinct improvement. Most plumbing jobbers carry it in stock, or can get it quickly.

MANUFACTURED AND SOLD BY

ALABAMA PIPE COMPANY

122 So. Michigan Avenue Chicago, Ill.

STRINGER BROS. CO., Inc.



### Thomas Jefferson Hotel

BIRMINGHAM, ALA.

Architect, D. O. Whilldin
Plumbing Contractors, Pate Plumbing Co.
Plumbing Jobbers, Jefferson Supply Co.



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THE IMPERIAL BRASS MFG. CO.

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Cold rooms in Winter and hot rooms in Summer are a thing of the past in buildings insulated with Mineral

Placed in the walls, floors and rafters of a building. Mineral Wool acts as a protective shield which repels heat, cold and sound.

It is a real economy—saving enough in Winter fuel within a short period to cover installation cost—adds untold comfort and increased resale value to a building.

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#### The Modern English House

An excellent presentation of the different forms being used in modern English domestic architecture,—particularly "small house" architecture. It includes illustrations of houses recently built, and in many instances the floor plans are given. The materials used are wood; half-timber; stone and brick; concrete; stucco over various sorts of masonry or on wood or metal lathing. The volume would be invaluable alike to the architect, builder or home owner or to anyone interested in building.

Text and 192 pages of half-tone illustrations, Size 8½x11 ins. Clothbound. Price \$8.50

#### THE ARCHITECTURAL FORUM

521 Fifth Avenue, New York



The New Yorker Hotel, New York City, Sugarman & Berger Architects

### SUPERLATIVE

New York glories in the possession of so many "biggest" and "finest" that it is natural that the 43 story New Yorker Hotel (2,500 rooms), Sugarman and Berger, Architects, should be the tallest hotel building in the world.

Like so many other outstanding structures in the Metropolis, the Service Departments of the New Yorker are equipped with Alberene Stone Toilet Partitions and Shower Compartments.

Since Alberene Stone is fabricated and erected without any exposed metal it is exceptionally well adapted for use in sub-basements where moisture may be present to cause rust and deterioration. Stone flush against stone, held with tongue-and-groove joints, leave no crevices for vermin to breed, and so great is the structural strength that no metal clips or supports are needed.

Architects and builders are invited to send for informative literature, and to avail themselves of the aid of our Architects Service Department in planning sanitary installations which will be proof against deterioration and depreciation.

### ALBERENE STONE COMPANY

153 West 23rd Street, New York

rk Pittsburgh Cleveland Richmond Washington, D. C. Rochester Quarries and Mills at Schuyler, Va. Branches: Chicago

ALBERENE STONE TOILET PARTITIONS



It's a real economy towel"

WASHROOM economy. That means a lot in the long run. And that's why more hotels and public buildings are saving money by installing Onliwon paper towels.

Onliwons are economical, because they're more efficient. Served clean and fresh one at a time from Onliwon cabinets. Double-folded. One towel dries the hands completely. That means less waste—tidier washrooms. And a better drying job all round.

They're quality towels. Instantly absorbent. Soft enough for hands or face. Yet extremely strong—with long fibres that make them harder to tear than ordinary towels. Extra large. 34% more drying surface to the case.

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TOILET PAPER AND PAPER TOWEL SERVICE

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Please show us how we can save money Onliwon towels.	61	installing	A.	P. W.
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In its perfected form is the outcome of long experience, and is designed to meet the requirements of public use under Postoffice Regulation. It is simple and substantial in design and construction, durable in finish, and has an Architectural quality which is appreciated and much commended by Architects.

Full information, details, and specifications on request.

THE CUTLER MAIL CHUTE CO.

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### The Authority of Accomplishment

Toch Brothers, during 80 years of exhaustive research and painstaking manufacturing care, have perfected water-proofing and dampproofing compounds that meet every requirement in every type of structure large or small.

The Toch organization stands ready and willing to cooperate with architects and builders to the fullest extent of their ability. For catalogs, prices and complete information address Toch Brothers, 443 Fourth Avenue, New York.

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TO THE LARGEST BUILDING OF ITS KIND IN THE WORLD WITH JOSAM DRAINS



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G BRASS

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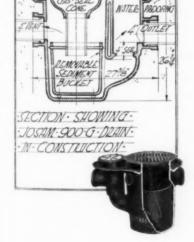
Josam Drains are protecting thousands of notable structures. Josam engineers, working together with architects, are finding new uses for Josam Drains. Architects are specifying Josam Drains not only at the obvious places but at every vital point where an extra

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The Josam Catalog "G" which recommends hundreds of uses for Josam Drains and other Josam Products will be sent gladly upon request.

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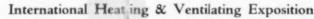
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is not a fire hazard. Prometheus Heaters are approved by the National Board of Fire Underwriters.

This attractive grilled-front cast-iron heater is furnished in various colors of vitreous porcelain to harmonize with the color scheme of the room.

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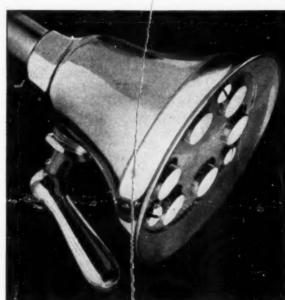
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# he same of this revolutionary shower head extends throughout the architectural prosession.



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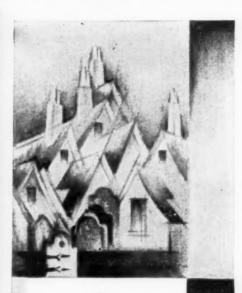
Not just "a new shower head" but one so radically improved as to demand serious consideration for every type of installation.

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Turns of the convenient lever make this improved Speakman Self-Cleaning Anystream Shower Head adjustable, giving any sort of spray the user wants. A coarse, sluicing, single stream . . . . a pleasant, normal spray . . . . a stinging, invigorating needle shower. The bather finds a variety of sprays to suit every purpose, from a refreshing, tonic bath to a single stream for shampooing the hair.

One turn of the lever flushes this head free from dirt or clogging scale. Never any bother of taking apart to clean. The streams always issue from water openings that are clean as a newly-washed dish.

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A turn of the lever sluices all sediment away.



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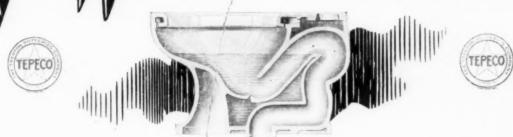
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Signal Control is an
exclusive development
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# NeW-The Exwite Welling



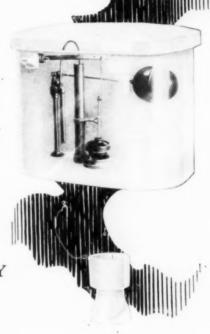
- Unless a water closet is completely successful in flushing, it quickly becomes a source of trouble. An outstanding feature of the Exwite Welling is its oversize outlet passage, insuring the passing of objects which clog most closets.
- Then the water surface; extra large and covering entire surface of bowl. With the strong, positive action of the Exwite Welling, the purchaser is assured a clean and presentable bowl after every flush.
- No better tank fittings are made. Very, very few combinations have assembled a combination of fittings to compare with them. They are as near trouble-proof as such things can be.
- Then the China Connection. It removes the last trace of metal and, with the fine all-white seat, completes the picture of whiteness and cleanliness.

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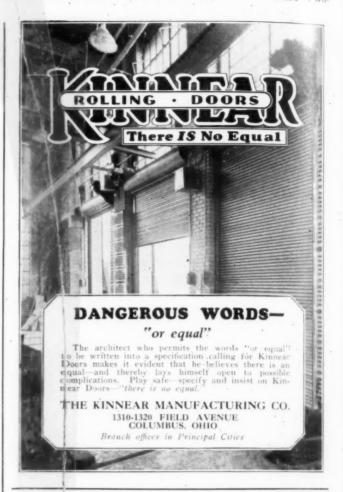
And dependable economy is the outstanding characteristic of the Thermotrol.

Dependable because it regulates room temperature accurately—economical because it saves that waste of fuel that is the result of thoughtless operation of uncontrolled heating. With the Thermotrol your customers can make one gallon of fuel oil or one ton of coal do the work of almost two.

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With a Foreword by S. L. Rothafel ("Roxy")

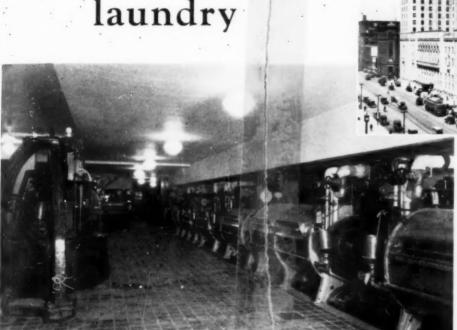
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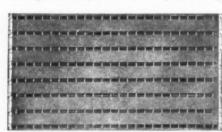
37,000 sq. yds. of the NEW RIBBED STEELTEX 37,000 sq. yds. of the New Ribbed Steeltex safeguard walls and ceilings in this outstand-ingly beautiful modern apartment building. The Grenfell, now under construction at Kew Gardens, L. L. N. Y. Economy of construc-tion, adaptability, and tenant satisfaction, no upkeep costs—influenced the Gormac Con-struction Corp., Brooklyn, N. Y., owners and builders, to build with reinforced plaster.



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Front view of the NEW RIBBED STEELTEX.



Pack view of the NEW RIBBED STEELTEX, showing new V-shaped metal stiffening rib and heavier backing.

TOW RIBBED STEELTEX brings to walls and ceilings the strength of steel reinforcing and the economy of singlecost construction.



EELTEX is not only outstandingly success ful on the largest apartment jobs, where costs are checked to the last cent. It is no less economical on the most modest home. It economical on the most modest home. It adds nothing to the cost of the finished wall, yet provides the permanence of reinforced plaster, strengthened by rustproofed steel. The picture above shows Tudor Apartments, nearing completion at Rockville Center, Long Island, architect, Joseph Unger, Flushing, N. Y.; owners and builders, Ansid Realty Inc., Rockville Center, L. I., N. Y.

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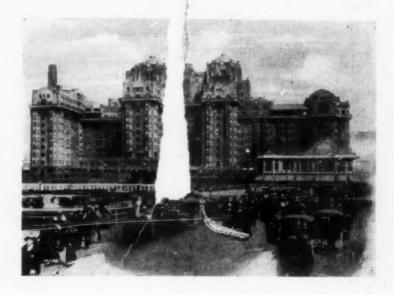
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